THE LANCET.

LECTURES

ON THE

ANATOMY, PHYSIOLOGY, AND DISEASES OF THE EYE.

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Lecture IV.

On the Appendages of the Eye.

Gentlemen,

The appendages of the eye consist of the parts which move it—the muscles of the globe; of those which cover externally and protect it—the eye-brows, the eye-lids, and their muscles; of the mucous membrane which connects the globe to the eye-lids—the conjunctiva; of the organs, which secrete, distribute, and convey away from the surface of the eye such fluids as lubricate it—the lachrymal organs, or apparatus. They are sometimes divided into the orbital and facial appendages, the eye-lids and eye-brows forming part of what is called the face, and the muscles and other parts being contained in the cavity of the orbit.

The globe of the eye is moved by six muscles, four of which are very similar to each other, and very simple in their origin and arrangement, namely, the recti, or straight muscles; they arise from the margin of the foramen opticum at the bottom of the orbit, are situated outside, inside, above, and below, and are inserted by broad tendons into the sclerotic coat; they closely embrace the optic nerve at their origin, surround it more loosely in their progress, and include the globe between their tendinous expansions. These four recti, or straight muscles, move the globe in the four directions of their course, or in the intermediate direction, when the actions of two are combined.

There are two oblique muscles, the superior and inferior. These do not pursue a straight course, but are situated obliquely with respect to the globe, and give a rotatory motion to it downwards and outwards, or upwards and outwards. The precise use of these oblique muscles is not very obvious, as the recti seem capable of performing every sort of movement which the globe is capable of. They have been called musculi circumagentes, or amatorii, having been, probably, regarded as muscles of expression, and supposed to be subservient to the class of motions which constitute ogling. We find them, however, in the eyes of animals, which certainly do not make love in that way.

By these muscles the globe is so moved as to direct the visual axis successively to the various parts of any object which we are desirous of surveying. They can carry the globe into every direction in which the surrounding bony prominences admit of vision being exercised. When a greater degree of motion is required, we direct the optical axis to the object by turning the whole head.

The orbit contains several nerves, of which the optic, or nerve of the second pair, is the most considerable. Its magnitude sufficiently points out the importance of the sense to which it is subservient. In size it is the second of those connected with the basis of the brain, being inferior only to the nerve of the fifth pair. The optic nerves have this singularity, that they converge towards each other within the cavity of the skull, all the others diverging to their respective destinations; they meet together, and their respective substances are united into one mass on the anterior surface of the sphenoid bone. This kind of arrangement is found in no other instance. The intermixture of their substances may account for the intimate sympathy between the two eyes, and for various morbid phenomena. The nerves, having united, separate again, passing each through its respective foramen opticum into the orbit, and terminating in the pos-

terior part of the eye ball. In their progress from the foramen opticum to the globe, another peculiarity is observed; they are closely invested by a sheath of dura mater, a prolongation of that fibrous membrane, which lines the skull.

The cavity of the orbit contains further the nerve of the third pair, which is employed in supplying three of the recti muscles, one of the oblique, and the levator palpebræ superioris, besides forming the lenticular ganglion, from which the nerves of the iris proceed; the nerve of the fourth pair supplying the trochlearis muscle; the ophthalmic branch of the fifth, which sends off a few small twigs in the orbit, and then leaves the cavity at the supra orbital foramen; and the nerve of the sixth pair, for the external straight muscle.

The cavity of the orbit contains also the ophthalmic artery, the various ramifications of which supply the globe of the eye, and the parts belonging to it; and the ophthalmic vein, by which the blood is returned from the orbital arteries into the cavernous sinus of the dura mater, through the foramen lacerum orbitale. The orbit also contains the lachrymal gland.

The several parts just enumerated are connected together by a very copious and particularly soft adipose substance, which, in the living subject, is almost fluid, and therefore readily accommodates itself to the different motions of the eye, and to the various changes of position which may occur in the globe. The bony cavity is lined by a fibrous membrane, which is a direct continuation of the dura mater, and technically called periorbita, bearing the same relation to the bone to which it is attached as the pericranium does to the skull, or the periosteum to other bones. The peculiarity of the arrangement consists in its being continuous with the dura mater at the foramen opticum, like the fibrous sheath that covers the optic nerve.

The eyebrow is the arched prominence which terminates the forehead and overhangs the eye; it consists partly of bone and partly of muscular and other soft parts. The bone is the superciliary ridge of the os frontis, forming the superior arch of the anterior orbital aperture. Immediately on the surface of the bone lies the corrugator supercilii muscle, which is subservient to the motion of the brow. It derives its origin from the nasal process of the os frontis, turns upwards and outwards in the direction of the eyebrows, and is lost among the fibres of the orbicularis palpebrarum and the occipito frontalis; it consists of a considerable fasciculus of muscular fibres. Its action consists in throwing the eyebrow and forehead into those longitudinal folds which are exhibited in frowning; it is, in fact, the muscle of frowning; it is more important as an instrument of expression than in reference to the physiology of vision; its indications are rather of a pathognomic than of a physiological kind, and illustrate the state of feeling or passion in the individual. Hence it is peculiar to the human species, though I am not prepared to say that it may not be found in those of the simiæ, or monkey tribe, which approach the nearest to man.

Over the corrugator supercilii there is a stratum of fibres forming a portion of the orbicularis palpebrarum; there is, further, a portion of adipose substance, covered by integument similar to that of the face in general, with the exception of the skin having a number of hairs implanted into it. These hairs are peculiar in their form and arrangement; they do not run lengthwise with respect to the brows, but are short, and form a double series, of which the inferior are directed upwards and outwards, the superior downwards and outwards, and the two orders meet and form a kind of ridge in the middle of the brow.

The palpebræ, or eye-lids, are a thin and moveable kind of curtain, closing the anterior aperture of the orbit. Anatomically speaking, the boundaries of the eye-lids are, the eye-brow above, the cheek below, the temple on the outside, and the nose on the inside. The palpebræ are in fact the parts included between these boundaries; when they are approximated to each other, they completely shut up the bony opening of the orbit, which is exhibited in the skeleton. As the eye-lids are adapted to the front of the globe, they are concave on the posterior surface, and proportionably convex on the anterior. They are made up of skin, muscular fibres, cartilage, and mucous membrane. They are separated from each other by a horizontal slit or opening, which is closed when they are completely approximated, and enlarged in various degrees as they are moved apart from each other. The separation of the lids from each other, in popular language is termed opening the eyes. The palpebral aperture or slit is said generally to be placed horizontally or transversely; but it is not strictly so, for the outer or temporal part is a little lower than the inner or nasal portion. The palpebræ are more firmly fixed to the bone at the nose than towards the temple.

Their motions are performed by two

muscles; one situated in the cavity of the orbit, and the other on the face. The former is the levator palpebræ superioris, arising close to the superior rectus, from the margin of the foramen opticum, running along the upper part of the orbit, and inserted by a broad expanded tendon into the whole breadth of the upper lid. The other muscle is the orbicularis palpebrarum; it consists of a broad stratum of fibres, deriving its origin from a small tendon at the side of the nose. This tendon is placed in the front of the excavation which lodges the lachrymal sac. The fibres, which are immediately under the skin, and arranged in a circular form round the eye-lids, cover the whole surface of these, reaching to the ciliary margin, and extending over the adjoining part of the eye-brow, temple and cheek.

When the eye is shut, the levator muscle elevates the upper lid, and draws it away from the lower. In opening the eye, the two lids are not equally moved; there is no descent of the inferior, but the separation is accomplished by motion of the superior lid, the inferior remaining nearly at rest. The two palpebræ contribute very unequally to cover the globe of the eye, the superior being by much the largest or deepest; the line of junction between the two lids does not run along the middle of the anterior surface of the eye, but is situated below the inferior margin of the cornea; and the superior lid, in its closed state, covers the whole of the cornea. Soemmerring, in the first plate of his work, gives a front and side view of the lids as closed in sleep, represents the line of junction between them as more than one-eighth of an inch below the inferior margin of the cornea, the globe being apparently turned a little upwards by the action of the rectus superior muscle. The levator then, by elevating the upper lid, denudes the anterior surface of the globe of the eye, but its continued action is necessary in order to keep the eye open; the weight of the upper lid would carry it down, unless there were some cause to counteract this tendency. Accordingly, when the action of this muscle is suspended, the lid drops down of itself in front of the eye. When persons are extremely tired, and incapable of continuing voluntary exertion, the lids descend over the anterior surface of the globe, or, in popular language, the eyes feel heavy. A fortiori this effect will be produced, when the muscle is paralysed, the power of opening the eye is either partially or entirely lost, according as the paralysis of the levator is partial or complete. Such affections are by no means uncommon; indeed I know no single muscle of the body which is so frequently the subject of paralytic affection independently of all others. May not this arise from the constant duty required from it, and consequent exhaustion of its power? The explanation of the phenomenon must be sought for in some cause affecting the muscle, and not the nervous trunk, since the other muscles supplied by the same nerve are very seldom affected.

The orbicularis palpebrarum is the antagonist of the levator; the contraction of its circular fibres, according to its degree, will either diminish the dimensions of the palpebral aperture, or completely approximate the lids. When the levator is relaxed, the gradual descent of the upper lid, by its own weight, will slowly close the eye; and this may be exemplified by elevating the lid when the muscle is paralysed. Generally, however, this passive kind of closure does not answer the purpose; we want to shut the lids more quickly, and we employ the active exertion of the orbicularis; its sudden and forcible contraction draws the lids together when a foreign body approaches, or when the organ requires shelter from too strong a light. In these cases the muscle can contract with great force, as we find when we attempt to draw the lids apart, in opposition to the will of the individual. Even in a child, labouring under intolerance of light, we can hardly overcome the violent and spasmodic contraction of the orbicularis. The action of this muscle not only closes the eye, but corrugates the whole integuments of the lids, temples, and surrounding parts.

The lids are formed of several different textures, which I shall enumerate in their order. The external surface is skin, peculiarly thin and delicate, so that, in fair persons, we not only see through it the ramifications of the subcutaneous vessels, but can even trace their minute divisions. In young persons, this portion of integument is perfectly smooth, but, as age advances, it loses its elasticity, and falls into wrinkles. When the upper lid is elevated, a deep fold is observable between the lid and the eye-brow; there is no corresponding fold in the lower lid. Immediately under the skin is the stratum of fibres composing the orbicularis palpebrarum. Next, in the upper lid, is the expanded tendon of the levator palpebræ superioris; there is no corresponding part in the lower lid. We next come to the part which gives firmness to the lid, extending and supporting the softer textures; it is a thin and flexible, yet firm and elastic cartilage, or rather fibro-cartilage,

which the skin, muscular fibres, and mucous membrane, may be said to be stretched. It can bend, and change its figure, recovering itself again by its elasticity. These cartilages are called tarsi, the superior and inferior. They are convex on the external surface, and concave on the inside; they have a thick margin corresponding to the ciliary edges of the lid, and a thinner turned towards the rim of the orbit. If we evert the upper or lower lid, these fibro-cartilages are easily brought into view. The superior is deeper than the inferior, in correspondence to the difference between the lids; the proportions, in this respect, are about as three to one. The inferior tarsus, like its eyelid, is nearly of equal breadth throughout; the superior also corresponds in form to its lid, being broadest in the middle, and narrower towards the two extremities. The orbital edges of the tarsi are connected by fibrous expansions to the front of the orbit. These, which are sometimes called the broad ligaments of the tarsi, are firm distinct fibrous layers near the bone, with the periosteum of which they are continuous, becoming looser and thinner towards the cartilage. The ligament is strongest and most firmly attached to the tarsi on the temporal side of the orbits, where protection is most needed. Next to the tarsus is an arrangement of glands, disposed in parallel longitudinal clusters, called the Meibomian glands. If you look at the inner surface of the upper or lower lid in the living subject, you will immediately discover these rows or clusters of glands, which are visible through the thin mucous membrane, and conspicuous by their whitish colour. If you examine them with a magnifying glass, you will find that each row consists of a congeries of very minute roundish bodies; these are, no doubt, so many glands, each of which pours out its secretion into an excretory tube, running along the centre of the cluster, and terminating by an open orifice on the ciliary margin of the lid. This series of openings, which, although minute, are distinctly visible in the living eye, corresponding in number to that of the glandular rows, are called the ciliary ducts. These are two engravings, taken from the work of Soemmerring, (they were exhibited to the class,) in which these minute structures are represented, of the natural size, and magnified, with great accuracy and fidelity. The whole number of the Meibomian glands, rom their extreme minuteness, is very considerable. There are between thirty and forty rows of glands in the upper lid, but not quite so many in the lower: these clusters too are much shorter in the latter than in the former, in consequence of the different size of the two lids. The unctuous or sebaceous substance which they secrete anoints the lids, and prevents them from sticking together; after death it congeals into a solid form, and may be expressed from the orifices of the ciliary ducts, like minute white threads. Next to this arrangement of glands is the mucous membrane, or production of conjunctiva, which gives a smooth and polished surface to the interior of the lid, and facilitates the relative motions of the eye and of the lids.

The eyelids, although made up of so many distinct structures, are by no means impervious to light. One obvious use of them is to guard the eye from the access of light during sleep; however, so much light passes through them that we can readily distinguish, in the day time, whether the light of a window fall on the face or be intercepted, although the lids may be closed; and persons, who usually sleep with their window and bed curtains drawn, adopt the expedient of leaving them open when they wish to rise early, generally finding the unusual impulse of light on the organs of vision sufficient to awaken them.

The several textures, or strata composing the lid, are connected together by a cellular tissue, which contains no fat; the eyes would be permanently closed if the lids were liable, like other parts of the body, to deposition of adipose substance; on the other hand, the cellular texture of the lids is easily filled with serous effusion, which, in erysipelatous and other inflammation, often closes them for many days.

You should attend closely to the ciliary margins of the lids, and make yourselves well acquainted with their form, structure, and appearances. Here the common integument and the mucous membrane of the eye are continuous. The very edge of the lid is formed by a kind of covering intermediate between the two structures; it is not exactly a mucous membrane, like that which lines the palpebræ, nor integument like the common skin; it is red, thin, yet compact and dense, and adheres closely to the cartilage. The ciliary margin is the thickest part of the lid; it is a flat surface coming into contact with that of the other lid when the eye is closed, yet the inner edge, or that turned toward the globe, is said to be a little sloped, so that a small channel is formed, in the closed state, between the palpebræ and the globe, for the passage of the tears.

At the outer edge of the ciliary margin are a number of pores in the integument,

in which the cilia are implanted. The hairs which form the cilia, like those of the supercilia, are peculiar in their form and arrangement; each hair arises from a bulb, like the hairs in other parts of the body; it is slender at the origin, increases gradually in thickness, and then tapers off to a fine point; they are all curved, the concavity of the superior cilia being directed downwards, and that of the inferior upwards, so that they cross when the lids are closed. The superior are stronger and longer than the inferior; the middle are the largest and strongest, and they diminish gradually in length and strength towards the angles of the eye. Just behind the eye-lashes you will see the apertures of the ciliary ducts. Where the series of ciliary ducts ends towards the nose, and at the very inner or nasal extremity of the tarsus, there is a slightly prominent kind of papilla, of whitish colour, with a round aperture in the centre, called the punctum lachrymale.

The lids, though separated by a transverse slit, are united towards the temple and nose, and the points of junction are termed the angles, or canthi of the eye—the internal and external, or the greater and smaller. The internal, or greater angle, is rather rounded; the external, or smaller, is acute. By the tendon of the orbicularis, the internal angle is closely fixed to the side of the nose; the external is more loosely attached to the orbit by the broad ligament of the tarsi.

The size of the palpebral aperture is different in different individuals; in some persons a greater portion of the globe is habitually exposed than in others, and hence persons are popularly said to have large or small eyes, for I believe the size of the globe varies but little. The organisation of the eyelids, as now described, enables them to execute their various useful purposes, of protecting the eye from violence and accident, of shielding it during sleep, of shutting out the light when it is too powerful, or when disease renders it offensive; of keeping the cornea smooth, moist, and free from impurities, and of disseminating the lachrymal fluids over the organ. The cartilage gives to the lid its uniform smooth surface; the Meibomian secretion anoints their edges, and prevents them from adhering during sleep, or occasional contact; their rapid motion in winking, with the concurrent approximation of the eyelashes, shuts out extraneous substances and preserves the cornea constantly clear for the transmission of light, whilst the polished mucous surface glides without the smallest friction over the equally polished globe.

The name of conjunctiva denotes that it joins or unites the globe to the lids; it is sometimes called adnata, from its growing or adhering to the surface of the eye. Indeed it adheres so closely to the front of the organ, that it ought, strictly speaking, to be enumerated among the tunics belonging to the globe. The line of the cilia, in each lid, may be considered the boundary between the skin and the mucous membrane, the point of union of the two structures. The conjunctiva then, is perforated at the ciliary margin of the upper lid, by the ciliary ducts; it lines the posterior or inner surface of that lid, extending a little way above the upper or orbital edge of the tarsus; from the lid it turns over the globe, covering two-thirds of the eye, viz. the anterior portion of the sclerotica, and the cornea; it is reflected from the inferior portion of the globe to the posterior surface of the under lid, which it lines; reaching the ciliary margin of the lower lid, it is perforated by the ciliary ducts, and again becomes continuous with the skin.

Thus this membrane is reflected from the palpebræ to the whole circumference of the globe, forming a circular fold, which, at the point of reflexion, corresponds to the fat of the orbit. This angle of reflexion is the boundary between the external surface and the orbital contents; it opposes the passage of an instrument, or any extraneous substance. It is a loose fold, and most loosely connected to the surrounding parts, yielding to the motions of the globe with perfect facility, drawn smoothly over the convexity of the sclerotic, when the eye is moved in a contrary direction, and forming two or three loose folds on the opposite side, or that towards which the eye is turned.

The conjunctiva is not only connected with, but constitutes part of the external surface of the body; it is actually exposed to the air when the palpebræ are open, though it is completely shut up when they are closed. It is a mucous membrane, having a polished surface, from which a mucous exhalation takes place, and a cellular surface adhering to the parts which it covers. It is one uninterrupted membrane; it differs, however, in structure and appearance in its different parts. Hence anatomists have designated that portion which lines the lids as the conjunctiva palpebralis; and that which covers the eye as the conjunctiva oculi; the latter part has been further subdivided into the conjunctiva corneæ, and the conjunctiva scleroticæ. All these, however, agree in the circumstance of having a smooth and polished surface, and of producing a mucous exhalation.

The conjunctiva palpebralis is a thin vascular membrane, of reddish colour from numerous visible vascular ramifications, and semi-transparent, so that you may see through it the cartilage, and the parallel rows of Meibomian glands; it is consolidated to the ciliary margin of the tarsus, and it adheres closely, but less firmly, to the rest of the cartilage.

The conjunctiva sclerotica is of a white colour, thick and pulpy in its texture, and, in conjunction with the dead white sclerotica, giving to this part of the eye that appearance which is designated by the popular expression, white of the eye. It is remarkable for the almost entire absence of vessels carrying red blood; in its natural state you do not see more than a very few small red vessels creeping on its circumference from the lid. It is connected to the parts on which it lies by a loose cellular texture, which easily falls into folds, and permits the globe of the eye to be moved in all directions. These folds become the seat of serous effusion in certain inflammatory affections of the eye.

The conjunctiva cornea differs remarkably from both portions of the membrane just described, so much so, that one doubts, at first, whether it really is a part of the same structure. No vascular ramifications are visible in it, and it is so closely connected to the corneal substance, that you cannot separate it by dissection in the recent eye; we are satisfied, however, that the cornea is covered by a continuation of conjunctiva. In the first place, the anterior surface of the cornea possesses the same acute sensibility as the rest of the conjunctiva. In fact the sensibility is greater in this than in any other part of the eye, while the proper corneal laminæ appear insensible. Changes produced by disease are often continued from the conjunctiva sclerotica to the cornea. The prolongation of red vessels, and thickening of texture reduce the cornea to such an identity of character with the conjunctiva, that the boundary sometimes can hardly be perceived. In certain animals a strong proof is afforded that the front of the cornea is formed by a continuation of the palpebral lining. In the serpent tribe, which annually shed their epidermis, the front of the cornea comes off with the rest of the external surface of the body. In the eel the anterior surface of the cornea is often drawn off, when it is skinned. A subterraneous animal (nemi, slepex, mus typhlus, Lin.), whose habits and manners are analogous to those of the mole, has the eye covered with hairy integument like the common skin of the body.

Under particular circumstances, the surface of the eye is washed by a more copious secretion, of different character from the mucous conjunctival exhalation, which, not being conveyed away fast enough by the ordinary excretory apparatus, is poured over the lid, taking the name of tears. This fluid is secreted by the lachrymal gland, which is a small gland of conglomerate texture, seated in the orbit, within the external angular process of the frontal bone. Its excretory ducts open on the surface of the conjunctiva, above the external angle of the eye; there are about seven ducts, which are scarcely to be seen in the human eye, except under favourable circumstances. In the eye of the horse or bullock they are of sufficient magnitude to admit a small probe. The secretion of the lachrymal gland is a watery fluid, containing a considerable saline impregnation, hence saltish or brackish to the taste, and, when copiously poured out, it produces a temporary irritation and redness. The secretion of the lachrymal gland is excited by the direct irritation of foreign bodies, particularly those of acrid properties; by that of recent conjunctival inflammation, and by particular mental emotion. The fluid which moistens the eye, whether conjunctival or lachrymal, is absorbed by an excretory apparatus, and conveyed into the nose. The puncta lachrymalia already described, are the external commencements of two small tubes, which go towards the internal angle of the eye, and there terminate in the lachrymal sac. These tubes are called the lachrymal canals, or ducts; they converge, the superior passing inwards and downwards, and the inferior inwards and upwards; they are about a quarter of an inch in length, and open at one and the same point into the lachrymal sac. This bag, about the size of a small horse bean, and oval, is seated in the bony excavation on the inner side of the anterior orbital aperture. Its superior end is rounded; the inferior, slightly contracted, forms a tube half an inch long, and larger than a crow quill, called the nasal duct, which descends into the nose. The lachrymal bag closely adheres to the bony excavation which lodges it, being covered, on its anterior or exposed surface, by a firm fibrous layer attached to the edges of the bony groove. This anterior surface is further covered by the fibres of the orbicularis and the skin; the tendon of the former crosses it transversely a little above its middle, so that one-third of the bag is above, and two-thirds below the line of the tendon. The lachrymal canals open just behind this tendon, on the outer or

ocular side of the bag. The communication with the nasal duct is the inferior extremity of the sac, a slight constriction marking the distinction between the bag and duct. The latter passes from above obliquely downwards, and a little backwards, enclosed in a bony canal, and opens in the inferior meatus narium, on the outer side of the inferior turbinated bone, which must be cut away in the dead body to expose the aperture; the latter is then seen as an oblique slit.

The lachrymal sac and the nasal duct are lined by a thick pulpy mucous membrane, resembling in its structure the Schneiderian membrane of the nose, and containing, like that, numerous small mucous cryptæ. The lachrymal canals, and the puncta lachrymalia, are lined by a thinner and more compact membrane continuous with the conjunctiva. Thus these lachrymal passages establish a connexion, by continuity of surface between the eye and nose. The fluid taken up by the puncta lachrymalia is conveyed into the sac, and it then descends into the nose. We do not exactly understand the mode in which the circular orifices of the lachrymal canals suck up the fluid. A small space is seen in the inner angle of the eye, between the two lids, towards which the tears flow, and at which the small triangular canal formed between the closed lids terminates; this is called lacus lachrymarum, and the prominent papillæ, in which the puncta lachrymalia are perforated, are turned towards this space. When the secretion of tears is much increased by any of the exciting causes which I have mentioned, the fluid is poured out faster than it can be absorbed by the puncta, and it flows over the surface of the cheeks.

In the internal angle of the eye, near the puncta lachrymalia, is a small prominent body of a reddish colour, called the caruncula lachrymalis; this part you will observe better by looking at it in the living eye than by examining it in the collapsed and shrivelled state which it exhibits in preparations. It is a congeries of glandular substances, similar in structure to the Meibomian glands. Between the caruncula lachrymalis and the globe of the eye, is a small fold of conjunctiva, called the semilunar fold, which appears to be a rudiment or imperfect exhibition of that structure which in quadrupeds constitutes what has been termed a third eye-lid, and which is situated vertically between the upper and lower lid.

LECTURES

ON SOME

PRACTICAL POINTS OF SURGERY,

DELIVERED TO THE

Students of the late Borough Dispensary,

By MR. ALCOCK.

LECTURE IV.

On the occasional ill consequences of Venesection.

Gentlemen,

Previously to entering upon the details of the occasional results of venesection, it may be well to recapitulate some points of the past Lecture. I alluded to the imperfection of our knowledge on the subject of inflammation, and the means by which that knowledge may be extended, namely, by reading, observation, and experimental research. The effects of loss of blood, whether accidental or remedial, whether general or local, were considered. The necessity of a strict knowledge of the surgical anatomy of the bend of the arm—the difficulties occasionally experienced—the requisites when complete, and the simplification of the means in cases of emergency—the precautions and steps of the operation were particularized.

Mr. Benjamin Bell has illustrated the importance of bloodletting, in his system of surgery, in the following terms:—

"Bloodletting, whether we consider it as to its influence on the system, or with respect to the nicety with which it ought to be performed, is perhaps one of the most important operations in surgery. From being so frequently practised, and every pretender to knowledge in the healing art being able to perform it, the public have been induced to consider it as trivial with respect to its execution; but every practitioner of character will acknowledge, that in order to perform it properly, the greatest nicety, steadiness, and exactness, are required. Every other operation in surgery I have frequently seen well performed; but I have seldom seen bloodletting with the lancet correctly done. When properly performed, it is a neat operation; but when not done with exactness, it is the very reverse."

The difficulties occasionally experienced have been already noticed; the *defects*, some of which not unfrequently frustrate the intention for which the operation is per-

formed, are, 1st. The bandage too tight, or the reverse; 2dly. The incision too small or too large; 3d. The valvular form of the aperture; 4th. The turning of the hand and fore-arm.

It may seem superfluous to point out the advantage, nay, the necessity of being able to bleed with neatness and certainty, whenever it may be essential to the welfare of the patient; for it is of little moment to be able to point out the appropriate remedy for a dangerous disease, if that remedy be not carried into effect, and in the inflammation of a vital organ, it is not by any ordinary *local* bloodletting that the disease can be subdued with the same certainty as by *general* bloodletting. Hence the loss of time, by the use of inefficient means, sometimes allows disease to proceed to a fatal termination, when the malady might have been cut short by efficient treatment. Mr. Alcock mentioned instances in which the reputation of medical men had suffered by unsuccessful attempts to open a vein, whilst others had superseded them by observing the cause of the failure, and doing that with certainty at once which had been previously and repeatedly attempted in vain; and others in which the supposed impracticability of the operation, after failure, had given way to trivial substitutes, till the disease had become irremediable. This Mr. A. stated he had frequently had occasion to observe in the diseases of children, such as croup, inflammation of the larynx, &c.

The adaptation of any remedy requires discrimination and sound judgment, and the *abuse* of general bloodletting, when local abstraction would suffice, is to be guarded against as carefully as the error above noticed.

The *accidents* and ill consequences resulting from bleeding are generally slight, but sometimes have proved fatal; —not in a solitary instance or two, but unfortunately on many occasions. It is in surgery as in common life, important effects are produced by *apparently* trivial causes; and Franklin's illustration of the loss of the rider from a trifling beginning, if homely, is as likely to be remembered as any I can offer you.

"For want of a nail the shoe was lost," &c.

The *causes* of accidents and ill consequences may be referred to,—1st. peculiar habit or state of health of the patient;—2nd. mismanagement on the part of the patient; sometimes, however, it is to be feared the mismanagement may appertain to the operator;—3rd. the want of sufficiently accurate knowledge of the parts to be operated upon; —4th. want of skill, and this more frequently arises from the deficiency of accurate knowledge than from other circumstances; for when the ideas are clear, the hand is generally obedient to the will;—5th. want of care, provided the requisite knowledge and skill have been attained; and, lastly, though for the honour of the profession, I believe it to be of very rare occurrence, it has been known, that the hand of an operator has been unsteady owing to intoxication.

The *accidents* which may arise from bleeding are more numerous than may be generally supposed. One of the most frequent is the occurrence of *syncope* or fainting. Often this does not depend upon the timidity of the patient, but upon the physical effects produced by the loss of blood. The brain, like the other parts of the body, depends for the due performance of its functions upon an adequate supply of arterial blood, without which these functions immediately cease; again, the organs of circulation and of respiration depend upon the influence of the brain and nervous system, and cease to perform their functions if that influence be withdrawn, this also happens to the muscles which give motion to the body; hence, if a quantity of blood be lost or abstracted so largely or speedily that the vessels cannot adapt themselves to the diminished quantity circulating within them, the blood is no longer propelled in sufficient quantity to support the energy of the brain, and loss of power, of sensation and of consciousness are the immediate result: every one knows that a person in a fainting fit is like one apparantly dead. Sometimes this condition is merely momentary, and is immediately succeeded by the return of consciousness and power; at other times it continues so as to cause alarm for the patient's safety, and I need not tell you, it has happened that from this state of apparent death the unfortunate patient has not revived. One instance of this kind, which came to my knowledge many years ago, led me to observe whether the more beneficial effects usually observed in the treatment of acute disease when bleeding had produced fainting than when that effect had not been induced, might not be obtained without carrying the depletion to that extent which should, in any degree, endanger the patient's safety; and I have been long convinced that, particularly in those acute inflammations of parts essential to life, and which, when uncontrolled by art, speedily run a fatal course,

by adapting the mode of abstracting the blood to the existing circumstances of the case, a much less loss of blood will suffice than is often resorted to, by which a correspondent saving of the strength and vital powers of the patient is effected. Those medicines which act particularly in diminishing the powers of the circulating system, employed after a first efficient bleeding, may very generally supersede the necessity of repeated abstraction of blood, or may render the less debilitating loss of a few ounces, locally, equivalent to a full bleeding without these remedies. But though these medicines are invaluable aids, when general bleeding has preceded, yet, being more slow in producing their effects, it would not in the more severe cases be safe to trust to them alone in the first instance.

A gentleman who enjoys in a high degree the confidence of his professional brethren lately informed me that a relation of his, a surgeon in the country, had bled a lady, who fainted and died upon the spot. My informant, with that candour which becomes the members of a liberal profession, observed, he did not know that any blame was deserved; but the accident proved very detrimental to the practice of the unfortunate operator.

What should be our treatment when fainting continues so long as to indicate danger to the patient? In slighter cases, the placing the body horizontally, and the application of stimuli to the nostrils, face, &c. will suffice; but unless the patient speedily revive, the most approved means for restoring suspended animation must be immediately carried into effect, taking care that the head and upper part of the body be not too much elevated. The usual means for restoring suspended animation admit of much simplification; but this will come under consideration in a future lecture.

Thrombus, ecchymosis, or diffusion of blood under the skin, is one of the slighter accidents from bleeding, though to the young operator, who has not been taught how to avoid its occurrence, it may appear alarming. The cause may be either an oblique or valvular opening in the first instance, or the skin may be moved so as to cover the opening of the vein, by the twisting of the fore-arm and hand, as is often done by patients, when not cautioned to avoid it. When this is perceived, let the opening in the skin be made to correspond with that of the vein, and the farther progress will be prevented. The blood is generally absorbed within a week or a fortnight, and this result may be expedited by evaporating lotions.

Aneurism, arising from wounding the artery in bleeding, is a more dangerous accident. I have before stated my opinion that it may be certainly avoided by adequate knowledge of the parts, and skill and precaution in the operator. I have seen several instances, but none occurring in competent hands; and, when to this circumstance is added that in the extensive practice of a public institution during a series of years, by the simple precautions demonstrated in describing the steps of the operation, maniacs, children, and others, who could not be influenced by reasoning or entreaty to keep the arm steady, have been bled, and such cases have not been rare, yet no wound of the artery has occurred: if, therefore, under these unfavourable circumstances it may be certainly avoided, what should cause the danger under the more favourable condition of a rational patient, capable of comprehending and anxious to follow the directions of the operator?

Aneurism may be diffuse or varicose. In the former the blood is driven among the surrounding parts; in the latter it escapes into the vein, but this is a comparatively rare occurrence. When the artery is wounded in bleeding, the blood flows in jets, and of a more florid colour than that issuing from the vein. It is impetuous, and restrained with difficulty; pressure below the orifice does not prevent the stream; but compression upon the artery above the orifice stops it. If, by pressure upon the orifice, the blood is prevented flowing outwardly, it is driven into the surrounding parts, and produces a swelling more or less extensive—this increasing, at length requires the performance of the operation for aneurism, which consists in exposing and securing by ligature the wounded artery. Other results, less likely to occur under surgical care, are repeated hæmorrhage from the wound, and inflammation sometimes terminating in mortification. The unfortunate patient, when in ignorant hands, has bled to death. Sir A. Carlisle related a case which came under his own observation:—a country blacksmith had bled a patient and opened the artery, but did not succeed in stopping the flow of blood; surgical assistance was sent for, but ere it arrived the patient had expired. On questioning the operator as to the circumstances, he said that "*he had bled him in the thumping vein*," and could not stop the blood. This was a case of high division of the humeral artery, and the more superficial trunk had been mistaken for a pulsating vein.

Suppose the artery actually wounded

in bloodletting, what should be the treatment? The securing of the wounded artery by ligature without delay, as in any other accidental wound, is the obvious treatment, by which the more remote and painful consequences may be prevented. Another question occurs, should the person, by whose want of skill or attention the accident has taken place be suffered to attempt the more dangerous and intricate operation of laying bare and securing the artery, which he had not the knowledge and skill to avoid? I should not like to trust my arm to such an operator; for if every greater contain the less, how can the person who has failed in the more simple operation be supposed competent to that which really calls for a high degree of skill and self-possession? These qualifications are not very likely to characterise any one to whom such an accident, as to wound an artery in bleeding, might be a probable occurrence. Should such an accident occur, the safest plan both for the patient and the unfortunate operator would be, not to attempt to stop the bleeding by the inefficient application of cloths or compresses, nor by tight bandages, which might mask the danger, but, if long continued, might endanger the strangulation and subsequent mortification of the limb; but simply to place the tip of his finger or thumb upon the orifice, and make there sufficient pressure, by which he may, without further injury to the patient, prevent the hæmorrhage till adequate surgical assistance be procured.

Some surgeons still entertain fears lest mortification should take place by the immediate ligature of the artery, before the inosculating branches have time to enlarge. I do not participate these fears, and, were it my own arm, would submit to have the artery tied, when the surrounding parts were in a natural state, rather than when likely to pass into unhealthy suppuration from the long-continued contact of extravasated blood. So far from having fears of the want of support by the inosculating vessels, the very freedom of these inosculating vessels is more likely to give rise to secondary hæmorrhage by the retrograde passage of the blood, if the artery have only been secured by a ligature above the wound. Several years ago I was called to a patient who had received a wound at the bend of the arm, and who was stated to be bleeding to death. An assistant arrived before me, and restrained the hæmorrhage till my arrival, by pressing with his finger upon the point from which it issued. From the situation of the wound, and the gush of blood which took place on removing the finger, it was probable that the trunk of the humeral artery was wounded. Bearing in recollection an unfortunate case of wounded humeral artery, which, in one of the metropolitan hospitals, had terminated fatally by secondary hæmorrhage from the artery after a ligature had been applied to that vessel above the wound, I determined to guard against a similar accident by tying the artery both above and below the wound. On exposing the vessel I found that the ulnar artery had been severed from the trunk of the humeral at the very point from which it was given off; I therefore tied the humeral artery above this point, and also the open mouth of the ulnar artery; notwithstanding this precaution secondary hæmorrhage occurred, but, certain that both the humeral and ulnar arteries were securely tied, it was an obvious induction that the blood must have flowed by the inosculating branches so freely, as to pass retrograde through the radial artery, and by distending that vessel, and passing through the side of the artery from which the ulnar had been severed, below the ligature on the trunk of the humeral.—The cause of the hæmorrhage and course of the blood being thus ascertained, the treatment presented little difficulty; the principles to be fulfilled were obviously to prevent the retrograde course of the blood in the upper part of the radial artery, above the point where the recurrent branches entered, and at the same time to avoid any compression of the limb generally which should endanger the circulation in the inosculating branches: these were effected simply by applying a graduated compress so as to act upon the radial artery at its upper part, whilst, by thus concentrating the pressure upon the point on which it was designed to act, the general pressure around the limb was so slight as not in any degree to obstruct the circulation. There was no recurrence of hæmorrhage, and the patient recovered without any untoward symptom.

ERRATA in Mr. ALCOCK's *Third Lecture*.

Page 278, line 8 from the bottom, 1st column, for "detect," read *direct*.

Page 280, line 29 from the bottom, 2d column, for "or," read *nor*.

REVIEW.

Dr. Mason Good *on* Instinct.—*London Medical and Physical Journal—November*, 1825.

Dr. Mason Good belongs to a class of scholars whose knowledge bears no proportion to their erudition. He is much more conversant with words than with things; he has read much, but thought little; his appetite for research is not seconded by a corresponding capacity of digestion, and though he is capable of collecting abundant materials for the elucidation of a great variety of subjects, he wants the faculty of rendering them available to the purposes of illustration. We have a painful recollection of two enormous quartos, which he put forth some years ago under the title of a Translation of Lucretius, accompanied with a heterogeneous mass of commentary, which, like the notes of a Dutch scholiast upon a classic, was heaped upon the text and version with tasteless and undiscriminating profusion. The dulness of the Doctor's prose was not relieved by the spirit of his poetry, for his version never rose above mediocrity, and it is altogether inferior to that of his competitor Dr. Busby,* who will be less known, we fear, to posterity, as the translator of the Roman poet and philosopher than as the author of a celebrated Rejected Address. Even the text of Lucretius, which served to eke out the Doctor's quartos, furnished a proof of his utter want of judgment and discrimination in a matter which might have been supposed to come more immediately within the sphere of his literary attainments; for he took it from Gilbert Wakefield's edition, which is not merely the worst edition of Lucretius he could have selected, but which, as an instance of the extent to which the text of an author may be disfigured by absurd and audacious emendatory criticism, is perhaps the worst edition of a classic that has ever been published.

With the impressions left on our minds by Dr. Mason Good's Commentaries on Lucretius, we confess that we expected little from an article on instinct, which bears his name, in the last number of the London Medical and Physical Journal, and we have suffered little disappointment, therefore, from a perusal of it. This article, however, has been put forward with no small degree of pretension, and as it might be supposed that something had been contributed to the illustration of this subject by the industry, if not by the talents of the writer, we shall devote somewhat more of our space to an examination of it than its intrinsic merits would entitle it to occupy.

Dr. Good sets out with stating, that there are certain actions occasionally to be met with among mankind, but more frequently and more strikingly among other animals, which indicate the employment of definite means to obtain a definite end, without the intervention of that train of thought which constitutes reason, and which have thence been ascribed to a distinct principle, distinguished by the name of *instinct*. Of the nature of this *principle* we of course know no more than we know of the nature of gravitation, or of the nature of matter or mind; and Dr. Good tells us, therefore, that it is his intention in this essay to tread in the same path as Sir Isaac Newton, and to point out nothing more than the nature of the *actions* which are ascribed to the

* There are really some spirited and highly poetical passages in Dr. Busby's translation of Lucretius; but we are aware that this will never be credited by persons who remember nothing of the Doctor but his immortal couplet,

When energizing objects we pursue,
What are the prodigies they cannot do!

principle of instinct, and the laws by which those actions are regulated, in the same manner as the great philosopher, whose example he endeavours to follow, established the doctrine of gravitation by observing and expounding its laws and operations.

It might here be objected that, strictly speaking, we can no more point out the *nature* of any action than we can explain the *nature* of the principle to which the action may be ascribed. Dr. Good's meaning, however, obviously is, though it is not very clearly or philosophically expressed, that it is his intention to point out the visible phenomena which are ascribed to the principle of instinct, and to explain, as far as may be, the laws by which those phenomena are regulated. With respect to the latter part of this design, Dr. Good speaks, indeed, with some degree of humility, but it is sufficiently obvious, that he imagines this essay to be no light achievement—no inconsiderable step towards the elucidation of a subject which he represents as involved, up to the present day, in great perplexity and confusion. Let us see how far the execution of Dr. Good's essay corresponds with its design, and whether his readers are bound to participate in the satisfaction with which he evidently contemplates the result of his researches.

Before entering into the proposed subject of inquiry, Dr. Good deems it expedient to advert to the fact, "as a starting post," that the visible or external world consists of bodies of two very different kinds; to wit, inanimate and living bodies. Dr. Good must forgive us for declaring that our minds misgave us a little at the mention of a "starting post." We have suffered too much of his company on a former occasion not to feel some degree of alarm when we found him embarking upon first principles, and we can assure him that we felt exceedingly grateful on finding only two or three pages devoted to the consideration of the difference between inorganic and organized matter, before he is fairly started. The following experiments are given as examples, illustrating the laws of instinct in the vegetable world.

"In order that the seeds of plants should produce and perfect their respective kinds, it is necessary that their shoots should rise to the surface of the earth, to enjoy the benefit of light and air. Now, in whatever direction the eye of a seed, from which germination first radiates, is placed, these shoots ascend equally to the surface, either in curved or straight lines, according as such ascent may be most easily accomplished. Mr. John Hunter sowed a quantity of peas and beans, with their eyes placed in different directions, in a tub, which he afterwards inverted, so that the bottom was turned uppermost, while the mould was prevented from falling out by a fine net; and, in order that the under surface might possess a superior stimulus of light and heat to the upper, he placed looking-glasses around the mouth of the tub, in such a way that a much stronger light was reflected upon the inverted mould than that of the direct rays of the sun; while, at the same time, he covered the bottom of the tub with straw and mats, to prevent the mould, in this direction, from being affected by solar influence. Yet the same instinctive law of ascent still prevailed. After waiting a considerable length of time, and perceiving that no shoots had protruded through the lower surface of the mould, he examined the contents of the tub, and found that they had all equally pressed upwards, and were making their way through the long column of mould above them towards the reversed bottom of the vessel; and that, where the eyes had been placed downward, the young shoots had turned round, so as to take the same direction.

As one experiment leads on to another, he determined to try the effect of placing other seeds of the same sort in a tub to which a rotatory motion should be given, so that every part of it might be equally and alternately uppermost, and the seeds should have no advantage in one direction over another. Here, as we often behold in other cases, the instinctive principle of accommodation was baffled by a superior power; and the different shoots, instead of ever turning round,

uniformly adhered to a straight line, except where they met with a pebble or any other resistance, when they made a curve to avoid such obstruction, and then resumed a straight line in the direction in which they were hereby thrown, without ever endeavouring to return to the original path."

It may be observed with respect to the last experiment, that it furnishes no exception to the instinctive principle of accommodation, for the seeds in this, as in other cases, took the straight course to the surface; and the notion that the instinctive principle was baffled by a superior power is founded upon the erroneous supposition that the shoots ought, in obedience to the general law, to turn continually round, in consequence of the rotatory motion given to them. *A priori* there is less reason to suppose that they should take a rotatory course than that they should take the course which they are actually found to follow, and the experiment, therefore, rather confirms than constitutes an exception to the general law.

"In cases of eruptive fever," says Dr. Good, "there is an obvious effort of the instinctive principle to throw the morbific matter to the surface of the body, where it can do the least mischief. In the discharge of extra-uterine fœtuses, the same skilful influence is still more striking, and if, in the course of this common tendency to the surface, an obstructive cause be encountered of superior force to the instinctive principle itself, the latter, as in the experiment of the beans exposed to the action of a rotatory motion, is overpowered, and the result is doubtful, and often fatal."

Here, again, there is the same error in the supposition that the principle of accommodation, in the experiment of the beans, was overcome by a superior power, and it is evident that there is no analogy between the result of that experiment and cases of disease, in which the morbific matter is prevented from making its way to the surface of the body.

The following are some of the instances of what Dr. Good calls the accommodating power of the instinctive principle in plants and animals.

"A strawberry offset, planted in a patch of sand, will send forth almost the whole of its runners in the direction in which the proper soil lies nearest; and few or none in the line in which it lies most remote.

'When a tree which requires much moisture,' says Mr. Knight, 'has sprung up or been planted in a dry soil in the vicinity of water, it has been observed that much the larger portion of its roots has been directed towards the water; and that, when a tree of a different species, and which requires a dry soil, has been placed in a similar situation, it has appeared, in the direction given to its roots, to have avoided the water and moist soil.'

'When a tree,' remarks Dr. Smith, 'happens to grow from seed on a wall, (and he particularly alludes to an ash, in which the fact actually occurred,) it has been observed, on arriving at a certain size, to stop for a while, and send down a shoot to the ground. As soon as this shoot was established in the soil, the tree continued increasing to a large magnitude.'

The red-breast uniformly prefers oak-leaves as a lining for her nest, whenever she can acquire them, but if these be not to be had she supplies their place by moss and hair. So where the bird of any kind, about to lay her eggs, is of small size, and the eggs are more than commonly numerous, the nest is always made proportionably warm, that the nestlings may all equally partake of the vivifying heat. Thus the wren, which lays from ten to eighteen eggs, constructs her little edifice with the greatest care and of the warmest materials; while the plover and the eagle, whose eggs are so few that the body of the mother may easily cover them, build with little solicitude, and sometimes content themselves with the naked cleft of a rock. And thus too, in very cold winters in Lapland, the fond water-fowl will occasionally strip the down off its breast to line its nest and protect its progeny.

When a wasp, in attempting to transport a dead companion from the nest, finds the load too heavy, he cuts off its head and carries it out in two portions."

Dr. Good might have enumerated, among the instances of the accommodating power of the instinctive principle, the well

known resource of the lobster, which, when its claws become entangled, bites one of them off, by way of resorting to the shortest method of extrication; but this example could not, perhaps, have been conveniently associated with what the Doctor terms, with his accustomed eloquence and perspicuity, "a distinct family of well-defined and cognate actions, always aiming at the same common end—the perfection, preservation, or reproduction of the system in which they exist." Mr. Buckland also, who has discovered that hyenas were once indigenous to this country, might have furnished him with a striking instance of the principle of accommodation in that animal. It is well known that the hyena has a decided partiality for ossific substances, and we are assured by the reverend mineralogist to whom we allude, that whenever that animal breaks his leg, he not only gratifies this instinctive partiality, but at the same time performs a chirurgical operation on his own person by eating off the fractured bone.

We now come to two general propositions,—

First, "That instinct, sensation, and perception are essentially distinct principles, which may exist conjointly, but each of which is capable of existing separately.

Secondly, That instinct is the common law of organised matter, as gravitation is of unorganised; and that the former bears the same analogy to sensation and perception as the two latter do to crystallisation and chemical affinity."

These are the propositions, we presume, on which Dr. Mason Good mainly relies for the applause of posterity, and by the development of which he expects to acquire a portion of the fame which has been awarded to the labours of his illustrious predecessor Sir Isaac Newton. We shall begin with the second of these propositions, because it appears to us to be most easily disposed of. "Instinct," says Dr. Good, "is the common law of organised matter, as gravitation is of unorganised; and the former bears the same analogy to sensation and perception as the two latter do to crystallisation and chemical affinity." Here we find an analogy, or proportion, affirmed to subsist between several principles, or powers, every one of which is declared to be essentially different from the other. Instinct, says the Doctor, bears the same analogy to sensation and perception as sensation and perception bear to crystallisation and chemical affinity, or, mathematically speaking, sensation and perception are a mean proportional between instinct, and crystallisation and chemical affinity, a proposition which, with all deference to Dr. Good's philosophical acumen, we take to be absolute nonsense. What analogy, we should be glad to know, do sensation and perception bear to crystallisation and chemical affinity? Dr. Mason Good might as well attempt to prove how often a yard in space is contained in an hour of duration. Confusion of thought almost invariably gives birth to absurdity in language, and we suspect that on this, as on other occasions, the proposition, as it stands in Dr. Good's essay, is very different from that which the writer meant to affirm. We feel some reluctance, in point of delicacy, in endeavouring to help the Doctor to his own meaning*, but we cer-

* Vide Goldsmith's Good-natured Man, act 3, sc. 1:—

Bailiff. What makes the bread rising? the parley-vous that devour us. What makes the mutton five-pence a pound? the parley-vous that eat it up. What makes the beer three-pence halfpenny a pot?——

Honeywood. Ah! the vulgar rogues; all will be out. (Aside.) Right, gentlemen, very right, upon my word, and quite to the purpose. They draw a parallel, madam, between the mental taste and the senses. We are injured as much by French severity in the one as by French refinement in the other. That's their meaning.

tainly suspect that what he meant to say was, that instinct bears the same analogy to sensation and perception as *gravitation* bears to crystallisation and chemical affinity. This proposition would be somewhat more intelligible than that which stands in the essay, but still the assumed analogy would remain to be proved; the *analogy* is mere matter of gratuitous assertion, and the proposition, in point of fact, amounts to no more than this, that sensation and perception are faculties observed in some living bodies, in which instinct is also observed; and that crystallisation and chemical affinity are powers belonging to certain modifications of unorganized matter, of which gravitation is a general property.

It is immediately after the enunciation of the proposition declaring the analogy &c. that Dr. Good takes occasion to observe, with infinite modesty, that the *parallel* between gravitation and instinct may be carried much further; that Sir Isaac Newton established the doctrine of gravitation chiefly by the humility with which he propounded and illustrated it, and that it is the aim of the writer of the essay to follow that great example, and to tread in the same path.

The remainder of the essay is occupied with examples introduced with a view of proving that instinct may exist separately from both sensation and perception, and that it may exist in conjunction with each of these faculties.

Among the instances of pure instinct, uncombined with feeling or intelligence, Dr. Good includes "the act of the new-born infant, in hunting out for the mother's milky food, and sucking with a perfection *which can never be acquired in subsequent life*"! and that of "an infant in danger of falling from its nurse's arms, which stretches out its little hands to break the fall, as though informed by experience of the use of such an action"!

"So when caterpillars are shaken from a tree, in whatever direction they descend, they all instantly turn towards the trunk and climb upwards, though till now they have never been on the surface of the ground, and are directed by instinct alone as to the track they are to pursue."

At what subsequent period of our lives, we beg to ask Mr. Mason Good, do we "hunt out for the mother's milky food," so as to enable him to decide on the superior precision with which the act of sucking is performed in infancy? We do not imagine that the Doctor has himself put this matter to the test of experiment, any more than he can have attempted to verify the popular notion respecting caterpillars. We can assure him that there is no more truth in this *dictum*, touching caterpillars, than in that which ascribes to the Scotch culex an affection for a southern aspect, and a consequent habit of turning its hinder extremities to the north.

The following example exhibits a curious series of uniform actions pursued by one of the insect tribe, but it is improperly classed among the instances of pure instinct existing *separately* from both perception and sensation:—

"The sphex, or ichneumon wasp, in its perfect state, feeds on the nectary of flowers; but, as soon as she is fitted to deposit her eggs, she becomes actuated by an appetite of another kind. She first bores a small cylindrical hole in a sandy soil, into which, by accurately turning round and adjusting herself like the nut-weevil, she also drops an egg. She next seeks out a small green caterpillar, inhabiting the leaves of the cabbage-plant, which she punctures with her sting, yet so slightly and delicately as not to kill it; she then rolls it up into a circle, and places it in the sandy nest, immediately over the egg. She continues the same labour till she has counted twelve, and deposited twelve caterpillars, one over another; and thus repeats the process of ovation and supply till she has exhausted herself of her entire stock of eggs. She immediately closes the hole and dies, entrusting her eggs to the fostering heat of the sun. The egg in each separate cell

or aperture is soon hatched, and the young larve finds, in the superincumbent green caterpillar, its food duly prepared and in waiting for it, and incapable, from its enfeebled state, of resisting its attack, though preserved from putrefaction by the little life that yet remains to it. It feeds progressively on the twelve caterpillars, and, by the time it has exhausted them, becomes fitted for, and is converted into, a chrysalis. In the proper season it awakes from its dormancy, works its way to the surface of the earth, throws off its chrysalid clothing, employs its fresh wings with dexterity, rises into the new element of the atmosphere, feeds on the honey of plants instead of on maggots; and at length pursues the very same train of actions, to provide itself with a progeny, which was pursued by the parent insect that gave it a being."

The economy of bees, and especially the mode in which those insects construct the cells of the honey-comb, might have furnished Dr. Good with some curious illustrations. This subject engaged the attention of Pappus, the geometrician, and it has been demonstrated, that the system of cells which compose a honey-comb is constructed in strict conformity with geometrical principles. In order that the honey-comb may occupy no more space than is absolutely necessary, it is evident that there should be no interstices between the cells; there are several different polygons possessing the important property of filling space about a given point, but it has been demonstrated, that of all these the hexagonal prism is of the most economical structure. Now this is the model according to which the bee really works; but a *complete* hexagonal prism is not in every respect suited to the purpose. The safety of the grub, and the preservation of the honey in which it is bedded, and which is its nutriment, require that the cell should terminate in a solid angle rather than in a flat surface. Here again there is a choice of figure, and indeed an infinite variety of modes in which such a termination might be formed, as requiring the least quantity of labour and materials; and the cells of the honeycomb have been shown by Maraldi, upon exact measurement, to terminate in that very angle which is mathematically ascertained to render the surface the least possible in such a structure.

In almost all the instances which Dr. Good gives of what he calls pure instinct in animals, the separate existence of this principle, considered apart from sensation and perception, is gratuitously assumed. It is easy to assert that instinct is a principle essentially distinct from sensation, and that in all these instances it is exercised independently of sensation, but nothing is proved by this method of philosophising, and Dr. Good deceives himself if he imagines that this was the way in which Sir Isaac Newton investigated the phenomena of nature. Locke might have taught him to pause before he attempted to assign, dogmatically, the limits between instinct, sensation, and perception; that great man was extremely cautious, on the one hand, in limiting the share of perception which may be supposed to belong even to the oyster or the cockle, and on the other hand, if sensation, which he believed to be the great source of all our ideas, be nearly obliterated in man, he candidly declared that he saw no reason for supposing that there would be any great intellectual difference between man and the lowest class of animals, *notwithstanding all that is boasted of innate principles.*

"Perception," says the author of the Essay on Human Understanding, "is, I believe, in some degree in all sorts of animals. We may, I think, from the make of an oyster or cockle, reasonably conclude that it has not so many or so quick senses as a man, or several other animals. But yet I cannot but think there is some small, dull perception, whereby it is distinguished from perfect insensibility; and that this may be so we have plain instances even in mankind itself. Take one in whom decrepid old age has blotted out the memory of his past know-

ledge, and clearly wiped out the ideas his mind was formerly stored with; and has, by destroying his sight, hearing, and smell quite, and his taste to a great degree, stopped up almost all the passages for new ones to enter; or, if there be some of the inlets yet half open, the impressions made are scarce perceived, or not at all retained: how far such a one (notwithstanding all that is boasted of innate principles) is, in his knowledge and intellectual faculties, above the condition of a cockle, or an oyster, I leave to be considered. And if a man had passed sixty years in such a state, as it is possible he might as well as three days, I wonder what difference there would have been, in any intellectual perfections, between him and the lowest degree of animals."*

We have already exceeded our proposed limits, but we apprehend we have said enough to convince our readers that Dr. Mason Good's Essay on Instinct has contributed nothing to our knowledge of this subject, and that the errors which pervade it, and the general feebleness of its execution form a singular contrast to the air of pretension and self-complacency with which its author has ushered it into public notice. The essay closes in the following manner:—

"The effect then being one, the mighty cause that produced it must be one also: an eternal and infinite unity,—the radiating fountain of all possible perfections,—ever active, but ever at rest,—ever present, though never seen,—immaterial, incorporeal, ineffable; but the source of all matter, of all mind, of all existence, and all modes of existences. Whatever we behold is God," &c.

When we call to mind that the translator of Lucretius was a zealous champion of the doctrines of Epicurus, we know not whether this is to be taken in a pious or a philosophical sense; to us the passage seems a little profane; at all events it is written in exceedingly bad taste, and has a much closer resemblance to the composition of a rebus in the Lady's Magazine than to a description of the attributes of the Great Author of Nature.

* Locke's Essay, book 2, ch. 9.

Dr. Good cites a passage from the *Phænomena* of Aratus,

πάντη δὲ Διὸς κεχρήμεθα πάντες
Τοῦ γὰρ καὶ γένος ἐσμέν,

at the end of this tirade, which has given Dr. Macleod, the Editor of the Medical and Physical Journal, an opportunity of displaying his profound acquaintance with Greek literature. A true citizen of the modern Athens, where Greek is well known to have become almost the vernacular tongue, Dr. Macleod very naturally imagined that his brother physician would conclude with a quotation from some Greek anatomist, and he has accordingly, at one stroke of the pen, converted the Phænomena of Aratus into *Anatomica Phænomena*.

Little did poor Dr. Macleod imagine that Dr. Good, instead of citing a treatise on *Anatomy*, was quoting from a Greek poem on *Astronomy*. That this is the editor's and not the printer's blunder is evident, because the names of authors cited at the bottom of the page are throughout the article distinguished by small capitals; and ARATUS, upon being converted into a work on anatomy, has been shorn of that typographical distinction.

SKETCHES OF THE SURGICAL PROFESSION IN IRELAND.

No. VIII.

DUBLIN HOSPITALS.

"Come draw the curtain, show the picture."
SHAKSPEARE.

In a communication lately published in this Journal, a correspondent, whose praise, if it were usual with us to exchange compliments, we should willingly refund with interest, complains that we have not devoted sufficient attention to the Dublin Hospitals, and imputes our seeming neglect of these institutions to

indolence. It may be readily supposed that such a charge must have proved to us an agreeable novelty, as it is the first time that the catalogue of our alleged offences has been enlivened by a public impeachment of a deficiency of exertion. Formerly, "too much" was the fashionable accusation; "too little" is now the word, so that in the fulness of time we may rationally expect that some new aspirant after originality will monopolize the "cap and bells," by accusing "Erinensis" with having said just enough! Our thanks, however, are due to this writer for his friendly memento, but he will permit us to correct a misconception of our motives, by assuring him seriously, that personal amusement, or the risibility of the public, though we should like to see them merry at the expense of folly, had as little to do in the composition of our observations on the Professors as indolence had in preventing us from paying our long promised respects to the surgeons of the Dublin Hospitals. To approach so formidable a body required some preparation, and, as our visit was intended to be public, we preferred the evil of delay to an unworthy appearance before such august personages. Indeed we are aware that many of them have complained bitterly of our silence, and pined in secret for the honour of a notice in THE LANCET. Our sensitive friend Tom Booney, for instance, has become hectic, we fear, through expectation; and Mr. Porter, the inspired editor of the "Irish Farmer's Journal," (whom Nature certainly intended for the cultivation of cabbages, and the management of swine,) has begun to doubt of his own importance from our cruel neglect. We might quote a variety of amusing incidents, in which the pruriency of notoriety betrayed the disappointed feelings of these gentlemen in low murmurs of discontent. But really the amplitude of their talents, the unique excellence of their practice, and the picturesque diversity of their personal appearances, almost inspired us with a consciousness of our own incompetency to discharge the obligations incurred, by becoming the historian of these mighty arbiters of life and death. To all that attention which error in its most imposing aspect naturally excites in the human mind their title is indisputable, and our only merit, we fear, must consist in appreciating the magnitude, without doing justice to their claims on critical retribution. It is a matter of doubt with us, whether that prodigy of the age, Joe Burns, "who reigns o'er all the realms of nonsense absolute," would not suffer by comparison with his Irish contemporaries in pure, native, homebred absurdities. But we are anticipating, and must conclude to commence.

Medicine and surgery are things of modern growth in Ireland. On looking over the eleemosynary records of that country, one would think that charity had been so too, or that the inhabitants were exempt from the ordinary lot of their species, for, until a period comparatively late, no public institutions were opened for the gratuitous treatment of disease. In walking through the wards of one of our modern gigantic magazines of lazars, curiosity naturally prompts the spectator to inquire how the paupers of Dublin, in the olden time, contrived to have their "heads repaired" without the assistance of Mr. Palmer's trephine, or their calculi extracted without the use of the Dublin new "landing net." Such, however, must have been the case—they recovered of a fracture untortured by a saw, or perished of the stone without the aid of a surgical Walton. Happy patients! who thus lived and died, ere ingenuity had added another terror to the "apparatus major," and the unnecessary interference of art obstructed the salutary efforts of nature, and sought to deprive her of the merit of recovering injuries of the head. This simple process of death and convalescence was incompatible with modern refinements, and no sooner had cultivation given birth to medicine and surgery in the metropolis, than Charity, smiling on the infant sciences, claimed them for her handmaids, and committed to their care the forlorn objects of her protection in an establishment first erected on the Inn's Quay, as late as the twenty-seventh year of the last century. The unavoidable procrastination of this alliance between physic and charity in Ireland has been amply compensated by the fertility of the union, for we have now every variety of hospital, from the wholesale house of recovery with three hundred beds, down to the petty retail shop of health at a morning dispensary. It is no disgrace, however, to the country, that its early annals are unadorned by rich hospital endowments. Such institutions are the products of peace and prosperity, blessings which have only of late begun to smile upon Ireland. Whilst other countries were enjoying the advantages of equal laws, and the arts and sciences "pursued the triumph, and partook the gale" of national affluence, Ireland, the Sicily of the British empire, had for her fair portion of its justice the blessings of penal statutes, and the fostering protection of some noble Verres, and the only medical establishment which the country possess-

ed, an infamous College of Physicians, was either lost in the torpor of sloth, or if it showed any symptoms of animation, they were, like those of the serpent awakening from its sleep, to inflict the injury of oppression on the excluded native, and to carry into effect the orders issued at the imperial head quarters of St. James's. Charles, indeed, cast a charitable glance on Irish distress, but his chartered institutions in this country bore no resemblance, except in name, to what is at present understood by the word hospital; the first of these royal favours, the Oxmantown school, being a place appropriated for the exclusive education of the children of the lower orders of the Corporation of Dublin; the second, the Old Man's Asylum at Kilmainham, being a sort of military Elysium for the accommodation of the veteran heroes of the bayonet who faithfully assisted to keep their country enslaved. It is only surprising that the capital of a country so long the victim of all the disgraceful enactments of British legislation could present so numerous a collection of charitable institutions as Dublin can at the present hour. To the eternal honour, therefore, of Ireland be it recorded, that while statesmen and kings were restricting her commerce, destroying her manufactures, and gibbeting the cultivators of her soil, the maiden munificence of a Stephens, the limited but generous benevolence of a Mercer, the melancholy humanity of a Swift, and the enlightened liberality of a Dunn, wedding Charity to Science, to give each other mutual support, were ameliorating the condition of her people, and setting them an heroic example of philanthropy, which it should be their future pride to support and to imitate.

Having pointed out the causes which retarded the establishment of Hospitals in Ireland, and the means by which these obstructions to charity were subsequently overcome, we shall proceed to a notice of the last institution of this kind erected in Dublin. At the end of a dirty narrow lane, on the south side of the city, after having the jetty effulgence of Day and Martin superseded by a less splendid varnish of mud on your boots, if winter, or your clothes thoroughly saturated with dust, if summer, you arrive at a neat plat of ground, smiling with green like an Oasis in the desert, surrounded with a high wall, having two entrances guarded by gates of massy iron. Start not, reader, we are not about to introduce you to an enchanted castle, or to treat you to the story of a fair captive rescued from thraldom by the chivalry of Mr. Crampton, for in the centre of this enclosure stands, fresh from the trowel, the New Meath Hospital and County Dublin Infirmary. Passing through one of the aforesaid entrances, you proceed on a serpentine walk, admiring on your way the *tout ensemble* of the building, which is certainly prepossessing in its appearance, until you come to a pompous pile of steps, by which you ascend, and find yourself landed at once in an apartment which serves for the common purpose of a hall and a waiting room for entering patients, a portion of it being railed off for a surgery, where ulcers are dressed and minor operations performed. From this you enter a corridor dividing the house through its whole length into two equal parts. On either side of this passage, on the first floor, there are a variety of apartments, amongst which a Board-room attracts the attention of the stranger from an unnecessary splendour of decoration. One cannot help reflecting, as he treads upon soft carpets, and looks upon other appendages of cabinet luxury in a house of charity, that the money so laid out is at least an injudicious expenditure, if not a fraud committed on the natural rights of the wretched. From this monthly banqueting hall of the directors of the hospital, you turn to an adjoining room, where you will be inclined to tarry a little longer to observe the practice and study the physiognomy of the nosological benchers assembled, behind a range of desks, in judgment on the ravages of disease, with a crowd of pupils collected round each prescriber, and all seemingly intent on treasuring up in their memories the fortuitous combinations of calomel and jalap, salts and senna, and that Irish *panacea* of treacle and water called *mistura pro tussi*. In the aberration of your glances over this picturesque scene of finery and rags—the bloom of health and deformity of disease, your eye will, perchance, rest for a moment on the countenance of a man seemingly pallid with thought, and perspiring wisdom at every pore, while, to those who know him better, these foolish symptoms of sapience, depicted in his face, appear but the prestiges of constant deliberation on propriety, which a painful anxiety to preserve only helps him in general to violate—this is Tom Booney. Before, however, you have time to witness the various steps in the complicated process of prescription, from "what is the matter with you?" to "go to the apothecary," inclusive, and to observe the rapid transits of the corresponding mental phenomena pass across the disk of this gentleman's countenance, your ears will probably be assailed by a violent ob-

jurgation, in which the slender *tenor* of Mr. Hewson's voice and the screaming *soprano* of some old inveterate tea-drinker from the cellars of the liberty mingle into a hideous concert, which generally terminates by sending the withered amateur of Bohea to hell, with an asafœtid pill in her stomach to cure her dyspepsia. Somewhat lower down, you may enjoy the solemn farce of a lecture on ovarian dropsy, the patient recovering in a few hours by parturition, from that wisest of all fools Mr. Macnamara; or you may behold the novel spectacle of all the diseases in Cullen's system summoned to surrender to the potency of mucilage by that Hibernian professor of surgery and agriculture Mr. Porter. Anon, the airy tread of Mr. Crampton is heard outside, and the pleasantries of this serio-comic exhibition are transferred up stairs, with dramatic celerity through the various wards of the house. Then, indeed, comes the tug of war,—masters and pupils jostling together on this ludicrous mission of health, to hear the fate of some difficult case decided, for it is the peculiar perogative of the "Grand Lama" of an Hospital to exercise his magic powers, only, where some paltry reputation is to be gained. Here again the same process of prescribing, and snatching information at random, are repeated with increased confusion. Might not this lottery of knowledge be converted into some other scheme, in which the studious adventurer might obtain prizes with somewhat less of the uncertainty of chance? As the machine revolves at present the purchasers of tickets, like the faithless prototypes of the metaphor, generally find them blanks, and no wonder when the son of fortune presides at the wheel. Thus amused, for awhile, by the ever-varying novelties of this "Comedy of Errors," your attention will probably be next attracted by a strange mixture of bibles and bottles, tracts and pill-boxes, piled up in formidable array on every table, and presenting a sort of miscellaneous battery of physic and divinity, for the overthrow of popery and disease. There is a ludicrous singularity in this union of the sacred and profane, a breadth of humour in this felicitous combination of a scriptural and medical phrmacopœia, which, if custom had not divested of its risible qualities, would make Heraclitus himself in his most tearful moments hold his sides with laughter. Only think, reader, of a bolus of jalap worked off with a chapter in St. Paul, or the effects of a dose of opium insured by the perusal of one of Mr. Jackson's soporific tracts! And we must add (by special permission) the hundredth Psalm chaunted in unison with the chorus of the closestool. Oh! Joe Burns, hast thou any thing in store for us equal to this? The farce, however, does not terminate here, and, to enjoy its best scene, you should fall in at the fortunate moment, when Mrs. Geogehan, the evangelical haberdasher from the liberty, throwing aside her yard for the pastoral staff, and her case of threads and tapes for the cure of souls, glides into one of the wards, and with eyes flushing with the corruscations of the "spirit," approaches the bedside of a moribund papist, and softly murmuring in his ear the tender expressions of damnation, eternal torments, &c. intreats him, by the hope of heaven and the terrors of hell, to abjure the errors of Rome for those of Lambeth, and, gently sliding her spiritualized fingers into a reticule, draws forth a little tract, holds up to the terrified sinner this two-penny *magna charta* of his redemption, containing the conversion of some worker in wax or clipper of cloth in Plunket-street, and, to make sure work of it, sends home her inspired logic to the poor man's heart with a donation of a flannel vest or a calico shirt. Poor Pat "knows what's what full bra'ly," and has not the least objection to accept the "swaddling clothes," but, in his own way, declines the logic. Such is a specimen of the eccentric manner in which the evangelical harpies of Dublin prey upon the feelings of six-sevenths of the patients of our Hospitals. Women whom the madness of fanaticism has unsexed are in general the actors in these disgraceful outrages on decency, almost every Hospital in the city being patronized by some fair "Marcellina," who tantalizes its inmates with tracts and belabours them with holy vituperation. We must add, and indeed with reluctance, that this vile system of intrusion on the religious principles of their patients, if not positively encouraged, is culpably tolerated by the medical officers of these institutions. Nay, the fire of religious animosity which burns in the breast of the master is sometimes observed to inflame the tender but susceptible feelings of the pupil. The following document, extracted from that museum of curiosities, the case-book of this institution, may serve as an example of this second-hand intolerance. "Michael Ryan, ætat. 37, a soldier in his Majesty's 39th foot, while defending the barracks about 12 miles past Limerick, during the time of the disturbances, the rebels attacked the post at which he was sentinel, fired three shots at him, one of which took effect,

having wounded him in the left hand, fracturing the forefinger and injuring the middle joint; he was in the regimental Hospital for some time, where the joint became anchylosed and the two upper portions of the finger so contracted as to be so situated as to be resting on the palm of the hand, therefore rendering the entire member perfectly useless; but such was a *mere digit* in the annals of those *murderous* and *rebellious* times—times in which no one but those of the *one party* could lay down in bed without the fear and trembling of being *butchered* before morning; neither was a man's property or means of living safe from the hands of those blood-stained marauders, for even this man was dismissed the service and was admitted into the Hospital 13 months after his misfortune, when amputation of the finger was his only relief and the only possible means of enabling him to earn his bread hereafter." This is indeed a very *natural* species of composition, the *spurious* offspring of passion, begot seemingly on some muse of easy virtue. We scarcely know which of its merits to admire most, the *illegitimacy* of the puns, the *promiscuous* intercourse of the "parts of speech," the truth of the assertions, or the excellence of morbid description, and were we not aware to whom the whole matter was ALLEY-ED, we might be at some loss to discover the real parent of such an anomalous bantling. One can scarcely help smiling at the monkey-like ingenuity of the learned author of this compound of politics and surgery, in thus attempting to wound a portion of his fellow-students through the side of Hippocrates. Of such a silly document no notice would have been taken, if it did not help to explain the liberality of those gentlemen who superintend the concerns of this Hospital, and whose duty it ought to be to keep the sanctuary of charity and science unpolluted by party scurrility. Having enjoyed the picturesque, the statistical details of the house will not detain the spectator long. It is commodiously constructed, contains fifty beds, but seldom so many patients, and is attended by a number of pupils somewhat less. The wards are small, some would think too much so for thorough ventilation. The idea of an operating room, fitted up as a theatre, is good; but the view, from the injudicious arrangement of the seats, extremely bad. Every attention to cleanliness is observed; and, considering the squalid inmates of an Irish Hospital, the place has a look of health and cheerfulness. Clinical lectures are attempted, but, with the exception of Mr. Crampton's, they are devoid of any interest. Here our praise must terminate. Morbid dissections are generally neglected, an omission the less pardonable in a city where prejudices against the post-mortem examinations of deceased relatives are rarely strong. The contempt manifested by some of the surgeons of this institution for their pupils is one of the most appalling absurdities which can well be witnessed. Yet it is quite natural that persons who pass for men of information, but possess it not, should, to maintain appearances, fence themselves round with an impenetrable barrier of ceremony, to guard against the intrusion of the curious. Ignorance, indeed, cannot afford to be communicative, or practice colloquial condescension with safety. Hence that sullen reserve and supercilliousness to pupils, observable in Hospital Surgeons. And yet only touch on the string of their vanity, and mark with what freedom the praises of York-street and the anatomical superiority of Ireland will flow. Some practical anatomists, we possess, it is true, but what Irish name, after all our extensive opportunities, will go down to posterity united or identified with the science of anatomy? Yes, we must beg pardon, Harrison has written a book! Here, however, we must leave them for the present, in the tranquil enjoyment of their future fame and their national prejudices, while we proceed to notice an operation of lithotomy performed by Mr. Crampton in this institution.

This operation is seldom performed in Dublin at present; when it is, children are mostly the subjects; adults almost never. Whether it is that the disease is on the decline in the country, or that the increased number of a better educated order of surgeons in the provinces, by performing the operation themselves, prevents the emigration of such patients to the capital as formerly, we are unable to decide—the latter opinion is probably correct. The case to which we allude has been rendered remarkable by an attempt to introduce a substitute for the common lithotomy forceps. The toy was, we believe, invented by a pupil of Mr. Crampton's, who seems to have a great taste for filing wire, and drilling holes in brass, having had some connexion with a watch-maker's shop. We scarcely can hope to give any idea of this childish product of Tunbridge-ware ingenuity. It appeared to us to be formed of a small oiled-silk purse, about an inch or so in depth and width, attached to a hoop of watch spring, or something of that kind, both ends of which passed up through a

brass cannula, forming the handle of this precious little plaything. It was expected, that by pushing this affair into the bladder, the stone would instinctively fall into the silk purse, and that by pulling the ends of the elastic hoop, the stone would be nicely secured and safely ushered into light. Mr. Crampton accordingly adjusted himself before the patient, introduced a staff with much gracefulness, but made the incision, as we thought, a good deal too small. The new instrument was then handed to the operator; he forced it into the wound, which it completely filled, twisted it and turned it in every direction, but without any success. Another and another of these instruments (for there was a variety of them prepared for the occasion) were tried, and with similar effect. After tormenting the patient thus for fifteen minutes, the "landing net" (as it was called by all those present, from its resemblance to that enemy of fish) was thrown aside for the old forceps, and the stone by its assistance, with much to do, was at length angled out. A great crowd attended to witness the failure of the "net," amongst whom Mr. Macartney appeared to us twenty years younger than we ever saw him look before; and what was still more pleasing to us, Mr. Colles, as if convinced of the *opacity* of professors' heads, kept his own out of the spectators' view by crouching down on the floor, and never as much as relieved his feelings during this memorable operation by asseverating by any one of the three persons of the Holy Trinity.

EHINENSIS.

FOREIGN DEPARTMENT.

ANALYSIS OF FOREIGN MEDICAL JOURNALS.

GERMAN JOURNALS.

THE second number of Tiedemann and Treviranus's Physiological Journal has recently appeared, in which we find a continuation of the interesting experiments of Dr. Wochler on the passage of different substances into the urine. The first series of these experiments we published in Vol. VII. No. 11, p. 343, and we have now to subjoin the concluding series with the physiological and therapeutical remarks.

Experiments on the Passage of different Substances into the Urine. By Dr. WHOLCER.

Colouring Substances.

1. *Indigo.*—That indigo can pass into the circulation, and be secreted by the kidneys, is proved by an experiment made by Tiedemann and Gmelin; they found that the urine of a horse was of a bluish green colour, to which they had given a solution of indigo, neutralised with potash, about three hours before. Seiler and Ficinus have observed the same thing in the horse; I have obtained a similar result from experiments made on dogs.

2. *Rhubarb.*—It is generally known that the urine becomes yellow after a person has taken rhubarb, and that it acquires a reddish tint if the patient should, at the same time, take alkaline medicines. Tiedemann and Gmelin have observed the same thing to happen in a horse which had drunk six ounces of the tincture of rhubarb. Home has said, that he found the urine coloured by rhubarb in seventeen minutes after it had been swallowed.* Westrumb has detected the colouring of rhubarb, both in the urine of man and of rabbits, in ten minutes after it had been swallowed. Bradner Stuart found that the urine of a patient became red on the addition of an alcali, after having used a bath containing a decoction of rhubarb.

3. *Beet Root.*—According to Backhusen and Gruithisen, this substance colours the urine red very distinctly in a short time after having eaten it.

4. *Celindin major.*—Two drachms of the fresh root of this plant, given to a horse, produced a decided yellow colour in the urine.†

5. *Madder.*—The internal use of madder has been known, a long time since, to colour the fluids of the human body, as well as those of cows and sheep fed upon this root. According to Sewal, it is very easy to detect the presence of madder in the urine, by an addition of potash, after the hands or feet have been kept a short time in an infusion of this substance.

6. *Hematoxylum Campechianum.*—Percival has observed the urine to become

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* Philosophical Transactions, 1808—p. 45.

† Ephemerides Nat. Curios. Dec. 1. An. ix. p. 196.

red after a long continued use of a decoction of logwood.

7. *Cactus Laurifolius.*—The sheep fed on this plant have, after a short time, a reddish-coloured urine. This was sometime since remarked by Gmelin, and I have recently had an opportunity of observing the same thing.

8. *Cactus opuntia.*—It is well known that the urine of animals, fed upon this plant, becomes red, and Willdenow affirms, that the greater number of the genus cactus have this property.

9. *Arella.*—The colouring principle of this plant becomes of a fine red on the addition of an acid, and green when an alcali is used. If an acid be thrown into the urine of an animal fed upon the berries of this plant, it becomes immediately red, and frequently as clear also as wine. The alcalies do not produce, in so decided a way, the green colour, because the salts with which the urine is loaded, and its natural yellow colour, somewhat mask their effect.

10. *Prunus sylvestris.*—A woman, whose case is recorded in the Ephemerides of Natural Curiosities, could, at any time, make her urine as black as ink, by eating a few of these plums. The same thing has been observed to follow the free use of elder-berries, and Stenck has reported many similar cases.

Odorous Substances.

The urine promptly acquires a violet odour after a patient has swallowed a small quantity of the oil of turpentine; after it has been applied to the skin in form of a liniment, or even after a person has inhaled air strongly impregnated with it, as in newly-painted rooms. It appears that this violet odour is produced by a mixture of the aroma of the urine, whilst recent, with the terebinthinate oil, although I am at the same time prepared to admit, that I could not produce the same peculiar smell by merely mixing the two fluids together. Bayberries, valerian, and castor are capable each of producing a very peculiar smell of the urine; and the disagreeable odour which the urine acquires after one has eaten asparagus, violets, or garlic, is known to all, and proves, indisputably, the passage of some part of these vegetables into that fluid.

Narcotic Substances.

Agaricus muscarius.—Among the various narcotic substances which have been found to pass into the urine, we must not forget to mention the agaric of Kamschatka. The inhabitants of that country make a drink of it by boiling it in water, which drink is very exhilirating; but what is a remarkable fact, the urine of those who have taken this beverage acquires the same inebriating quality. This circumstance is so well known to the Kamschatkadales, that in seasons of scarcity they are in the habit of saving the urine to drink, when their stock of the liquor is exhausted.

In the *Commentaria Bologna* the following case is related. A young woman who was attacked with fever remained several days in bed without passing any urine, or, at least, very little, and that with great difficulty; and this dysury ended in complete retention. The catheter was introduced, and nine pounds of urine drawn off. A week after this the retention returned, and the catheter was again introduced, when, to the great surprize of Machetoni, the physician, two ounces of pure oil were extracted with the urine. On inquiring into the cause of this singular phenomenon, he found that the patient had, three days before, taken four ounces of the oil of sweet almonds. To try this further Tiedemann injected an ounce of olive oil into the crural vein of a dog; soon after the dog began to respire with difficulty, this difficulty of breathing continued to increase, a copious vomiting came on, and in an hour and a half the dog died, but the bladder was found quite empty. This experiment, however, does not set the matter at rest, and it certainly would be an interesting subject of inquiry, and worth the trouble of ascertaining what substances can pass through the circulation and be secreted by the kidneys in an unassimilated state.

Substances which being formed in the body are excreted in a morbid manner in the urine.

1. *Albumen.*—Albumen is formed occasionally in the urine, particularly in that of hydropic patients. I have observed in the urine of a patient who had hydrothorax and ascites, that a considerable quantity of albumen was present, and that when the serous secretion began to diminish by the employment of digitalis, &c. that the secretion of albumen gradually diminished in like manner.

2. *Caseous matter.*—Chatelain speake of a creole who voided opaque and lacteous urine, in which the white substance, when extracted, had all the characters of caseous matter. Wurzer and Cabulle also report analogous cases, and Alibert mentions the disease under the name of *polyuric caseuse*; he says that he observed it in two women, whose urine appeared like cream, and Vauquelin found that its

chemical properties very much resembled fresh cheese.*

3. *Chyle.*—The ancient physicians frequently spoke of chyleous and gelatinous urine, and so on, but as the methods they employed to ascertain its exact nature were not very satisfactory, they will be passed over. In later times, the best observations on this subject have been made by Stoeller and Weber. Prout also, who is a very good chemist, reports a case which proves that true chyle may be extracted from the urine, or, at least, a substance which, in all its physical and chemical qualities, very much resembles chyle. The urine which he analysed afforded a coagulum solid and white, which, being analysed, yielded the same chemical products as chyle.

4. *Pus.*—Many cases are found among the ancient and modern authors, in which, on the subsidance of collections of pus in different parts of the body, that fluid has been found in the urine. Chelius has mentioned that an empyema, supervening upon a penetrating wound of the chest, ulcerated and discharged itself on the fourteenth day after the wound had been received; and that, during the same night, the patient voided so much pus in the urine, that it was impossible, by the appearance of the fluid only, to distinguish it from that passed by the wound. It has been asserted by several, that pus has been evacuated in the urine of patients labouring under puerperal fever; and it has been supposed, that the pus so evacuated must have been absorbed from the abdomen, into which it was secreted from the peritoneum. Oswald and Hufeland were of this opinion.

Among the substances which pass in very small quantities into the urine, or do not pass at all, must be mentioned carbonic acid gas, iron, and bismuth. It is said that camphor and mercury cannot be detected, by the most delicate tests, in the urine; Canter,† however, collected as much as sixty pounds of this fluid from persons who were taking mercury, which, after standing a little, deposited a thick sediment; the supernatant fluid was poured off and evaporated; it was then distilled in a red heat, with charcoal and carbonate of pot-ash, but not the least trace of mercury could be found in it. The sediment first deposited, when treated in the same manner, afforded more than *twenty* grains of metal, which were collected from the neck of the retort. Camphor never appears to pass off by the kidneys, but only by the skin and the lungs. Cochineal, alkanet, and turnsole, although possessing large quantities of colouring matter, are, according to Tiedemann and Gmelin, never found in the urine.

Physiological Conclusions.

From what was given in the former paper on this subject, and from what has been now shown, the following conclusions are drawn:

1st. That the urine cannot be made to contain iron, lead, alcohol, sulphuric æther, camphor, musk, the colouring matter of the cochineal, turnsole, and alkanet, whatever quantities of these substances may be taken into the stomach. The urine does not contain more carbonic acid gas, after free libations of fluids strongly impregnated with that acid, than before.

2d. The substances which form new combinations with certain constituents of the body, and which are expelled by the kidneys, are, sulphur, which in its passage through the kidneys forms sulphuric and hydro-sulphuric acids. Iodine is evacuated in the form of hydriodate; and the oxalic, tartaric, gallic, succinic, and benzoic acids, are generally found in the urine combined with alkaline bases.

3d. Substances which are found to pass into the urine without undergoing any, or very little, change, are the carbonates, chlorates, hydrocyanates, and sulphurets of potash; the prussiate of the oxide of iron and potash, borax, the hydrochlorate of barytes, the tartrates of nickel and potash, besides many colouring and astringent substances, as the sulphate of indigo, hæmatoxylum, beet root, cherries, certain odorous substances, as the iesuric of turpentine, the valerian, asafœtida, garlic, castor, saffron, and opium, together with the agaricus muscarius, and, under certain pathological conditions, the animal oils. So that it appears that the vegetable acids, and probably the others, never pass off by the kidneys in a free state, but that, in their course through the circulation, they become combined with an alcaline base. Berzelius gave a patient, whose urine was alcaline, acetic acid and phosphoric acid without their producing any change in the quality of the urine. The urine did not contain more acid, nor did it deposit any uric acid, at the time that the phosphoric acid began to purge the patient. Magendie has made a similar experiment to this with the same result. That the acids combine with certain bases furnished by the blood, before

* Nosologie Naturelle, p. 189.

† Specimen chemico-medicum de mercurii præsentia imprimis syphiliticorum mercurialem curationem patientium.

they are excreted by the kidneys, is perhaps the principal cause of their efficacy in certain diseases, particularly in putrid fevers. This circumstance shows also the little reliance to be placed on these agents for the solution of urinary calculi, composed as they are, for the most part, of earthy salts.

Again, from the before mentioned facts it may be fairly concluded that all these substances introduced into the body by whatever way, which are soluble in water or in the humours of the body, but which do not enter into its composition, or, as is said, are not assimilated; which do not form insoluble combinations in the body; which are not destroyed or chemically changed by respiration, or by any chemical change going on in the body; and lastly which do not escape by the skin or the lungs, which do not escape by either of the two last mentioned ways on account of their volatility, it may be concluded that such pass off by the urine. So that, as soon as the chemical composition of the materials of the human body shall be more minutely known, it will be easy to tell *a priori* if the substance intended to be administered will pass off by the kidneys or not, and the history of the functions of the kidneys is thus intimately combined with that of the secretion of foreign substances introduced into the body. Now it is pretty well ascertained that the union consists of about 93-100ths of water, and the importance of the function of the kidney in drawing off the superfluous quantity of fluid with which the body is often loaded is well known, and the relation which the quantity of this secretion bears to the quantity of the other secretions is also well known and is very worthy of remark. When the other secretions are profuse, the quantity of urine is diminished, it becomes of a high colour, of a very disagreeable odour; but it must not be inferred that the materials are diminished in quantity; it is only the diluting fluid, namely the water, which is deficient.

Therapeutical Conclusions.

The property which the vegetable alcaline salts possess, of converting themselves into carbonates in the animal body, and of passing in that form into the urine, would, at first sight, induce one to believe that they might be employed with advantage in the treatment of cases in which uric acid is morbidly produced and deposited. Indeed it is found that, in such cases, the alcaline carbonates for a time do good; but as their long-continued use is found to produce a depression of strength, and to weaken the powers of digestion, it becomes a very desirable object to obtain another set of remedies possessing the same advantages, without the corresponding disadvantages. The greatest part of the vegetable alcaline salts may be taken for a long time without inconvenience to digestion, and they have the advantage of not being very disagreeable when swallowed, and allow of being introduced in considerable quantities into the system. Without wishing to pretend that the good effect of the carbonated alcalies is only chemical, and that in this way they hold in solution the uric acid separated from the blood in too great quantity, and thus prevent the formation of calculi, yet I wish here, however, to remark, that the urine became alcaline with three drachms of the acetate of soda, and that it acquired the property of dissolving, with rapidity, uric acid in powder; but it continued to act on it so, that a large piece of calculus having uric acid base, and when an acid was added to this urine containing the uric acid in solution, the uric acid was immediately precipitated in the form of a white hydrate. It is generally considered that uric acid is insoluble in the carbonated alcalies, but Wetzlar was the first to show the contrary, and he explained the phenomenon by supposing that a double urate and carbonate were found simultaneously. The salts which can be given in the calculus or uric acid diathesis, instead of the carbonated alcalies, are the cream of tartar, the tartrate of potash, the borate of soda, the acetates and nitrates of potash and of soda. And, as the fruits which contain these salts, as cherries, strawberries, &c., operate in producing the same change in the urine, they may be used freely, and perhaps with less inconvenience to digestion. Chelin relates a case in which he succeeded in displacing a considerable calculus of uric acid, by ordering his patient to eat large quantities of cherries; and I have myself observed a similar good effect to follow the use of the cream of tartar. Such are the results of the investigation before us.

Chemical Experiments on Morphine.

Chemists have not hitherto been able to obtain morphine in the state in which it exists in opium, since opium is entirely dissolved in water, while pure morphine is nearly insoluble. For this reason morphine has been introduced into the materia medica in a state of combination with an acid, such as the acetic, sulphuric acid, &c.; hence the names of acetate of morphine, sulphate of morphine, &c.

It would be very important, therefore, to succeed in separating morphine from opium, without completely isolating it—without depriving it of the power of being dissolved, which it possesses in the natural state of the medicine. A memoir, lately published by M. Robinet, seemed to have solved the difficulty. This chemist, knowing the property which solutions of the neutral salts possess of dissolving certain substances, to the exclusion of other matter more or less solid, in pure water, employed a solution of the hydrochlorate of soda, and after many experiments thought he had obtained the natural salt of morphine.

After having ascertained that the morphine was not combined, in this case, either with the meconic, hydrocyanic, or gallic acid, he suffered it to be salified by a particular acid, which he designated the codeic acid. Ress, Orfila, Olivier, and d'Angers, have made experiments on this supposed codeate of morphine, tending to prove, that in a large dose it poisons in the same way as the acetate, and that in a small dose it is somewhat more sedative. Fresh experiments, however, and a more accurate chemical analysis, have shown that the saline combination is nothing but a *muriate* produced by the muriatic acid employed in its preparation.

The experiments of M. Robinet, though the direct object of them has not been accomplished, have been attended with some curious and important results. He has discovered that morphine, and the salts of morphine, with the muriat of iron highly oxidized, produce a deep blue colour, exactly resembling that produced by a hydrocyanate, and, what is very singular, this effect is owing exclusively to the morphine. Some particles of morphine, wetted with a drop of the solution of peroxidized iron, produce immediately this blue colour; but if a few drops of any acid, though greatly diluted, be added, the colour disappears. Acetic æther and alcohol produce the same effect; but not sulphuric æther, unless some portion of alcohol remains. The presence of the alkali seems to favour the production of the blue colour.

Powdered morphine, mixed in a very weak solution of muriate of iron, gives it a blue colour, is dissolved, and at the end of some days precipitates a certain quantity of yellow oxide of iron. These characters prove sufficiently that the colour produced by the morphine is not to be confounded with that produced by the hydrocyanates under the same circumstances. Quinine, cinchonine, strichnine, and brucine, exhibit no such phenomena.

The memoir of M. Robinet contains many other details, interesting in a chemical point of view, but less immediately connected with the objects of this journal. The results of the above experiments are not only curious, as exhibiting a new property of morphine, but may be of practical importance in medical jurisprudence.—*Gazette de Santé, Oct.* 15.

WESTMINSTER MEDICAL SOCIETY.

On Saturday evening, there was a full attendance of the members of this society. A paper was read by Mr. Hunt on the "*prevailing* Epidemic," from which it appeared, that the prevailing epidemic, as it was termed by Mr. H., was a species of febrile indisposition, which *did* prevail amongst Mr. Hunt's patients about two months since. By a most felicitous train of reasoning, Mr. H. was led to the conclusion of the disease being a kind of bastard ague, because it was cured by the exhibition of bark! Mr. Hunt was kind enough to inform the society that he generally exhibited the sulphate of quinine, and that his consumption of this article during the last few months amounted to several ounces. Query—Is this the puff direct, or puff oblique?

Towards the conclusion of the evening, Dr. Granville related to the Society a case of poisoning by laudanum, which occurred a few days since. The stomach was quickly emptied of its noxious contents by means of Weiss's stomach pump, but, notwithstanding the most active and powerful treatment was adopted, the patient died a few hours after taking the poison, exhibiting every symptom of apoplexy. On examining the body after death, there was found to be extravasation of blood in different parts of the brain, from the rupture of veins. There was no portion of the laudanum to be detected in the stomach or intestines, and there was no lesion of structure, or signs of inflammation. Dr. Granville considers that this congested state of the vessels of the brain has been overlooked in general, and that many of the cases of poisoning from opium which have proved fatal arose from the rupture of the blood vessels of the brain. Dr. Granville states, that this pathological fact has been entirely overlooked by Orfila in his experiments with this poison.

TRANSFUSION.

To the Editor of THE LANCET.

Dr. Uwins takes the liberty of forwarding to the Editor of THE LANCET the enclosed note from Mr. Wright.

The error respecting the time of applying the leeches to the arm is Dr. U.'s; the other and more important one is the reporter's of the case in THE LANCET.

Bedford-row, Tuesday morning.

The patient is doing well.

Grenville Street,
Brunswick Square

Dr. Sir—In the statement of Mrs. B.'s case in THE LANCET two errors appear; the one of no importance, viz. the application of the leeches on the Monday night, which were not had recourse to till Tuesday; the other, of having *not had either medicine or refreshment administered for three hours* PREVIOUS to the operation. Now it must be in your recollection that even Dr. Blundell himself administered brandy, and she had also, during the night, repeated exhibitions of brandy, bread and milk, broth, opium, and ammonia.

To the public it would appear that we had omitted that supply so urgently called for, and upon which it might naturally enough be said, her life might have been preserved without the operation. It is of much importance to us all that such an error should be contradicted; and if you think as I do upon it, you will make it a matter of refutation at the Society this evening.

You have no doubt seen THE LANCET, in which the statement is made, and appreciate it accordingly.

I am, dear Sir,
Your's truly,
Nov. 21, 1825. W. WRIGHT.

Dr. Uwins, Bedford-row.

We readily insert the note of Dr. Uwins with its inclosure; but we fear we have failed in our attempt to translate the unintelligible hieroglyphics of the latter into suitable English; for if we had copied the signature we should have printed it "Wight;" conceiving, however, that Dr. Uwins knows the name by which the writer is designated, we have, in this instance, adopted the Doctor's orthography. The original is, indeed, a literary curiosity; and shall have a place in our cabinet of *bijoux*, where the admirers of grammar, orthography, and penmanship may be gratified with a sight of the precious morsel, and, we "have no doubt," will "appreciate it accordingly."

HOSPITAL SURGEONS AND PUPILS.

To the Editor of THE LANCET.

SIR,—I was much gratified in perusing THE LANCET a few weeks since, on finding you were still advocating the cause of the medical students, and endeavouring to obtain for them the justice which is due to them from the Hospital practitioners; in other words, pointing out that a student, after having paid down his hospital fees, has a right and title to all the practical knowledge which the hospital cases for the time will furnish the surgeons with opportunities of communicating. But how, Sir, can this justice be done, how can the student obtain his right, according to the present system, in an institution I could name? He comes to the Hospital at the regular hour, twelve o'clock, in expectation of meeting the surgeons. When he arrives, on many occasions, no surgeon is to be seen, nor seen for nearly an hour. All this time, a great number of out-patients are in waiting, as well as in-patients to be seen, and others to be examined and admitted. At last one of the surgeons makes his appearance; and after some short time, another, and so on. But even when they happen to be all in the hospital at the same time, in no instance do they pass through the wards together. Observing no rule for the advantage of the students, one takes his walk into one part of the hospital, and another into another part; one sets about examining some of the out-patients, and another visits some of those in the wards; nothing is done in concert. By such a practice, the minds of the pupils are distracted; they are at a loss who to follow, and they do not obtain the information they ought. They hastily walk through a ward or two, stop at a few bed sides, often without even getting a proper sight of the patient, and without being told what his case is, and then as hastily walk out again; nor has the card over the bed of the patient made them one whit the wiser. The lecture-hour now draws near, and yet not half the business of the hospital is over, and through the late arrival of the surgeons, the irregularity in going through the business of the hospital, dilatoriness in examining the out-patients, and procrastination by attending to some other hospital matters, for which a more proper time should be chosen; through all these means, the patients and the pupils are kept waiting an unreasonable time and the latter are sometimes obliged t hurry away to Lecture, without obtai

ing one-tenth of the information which the patients would enable the surgeons to communicate. Whether this be honest on the part of the surgeons, I leave you, Mr. Editor, and your numerous readers to judge.

I had almost forgot to observe, that in the hospital I am particularly alluding to, there is not a single clinical lecture given; that on no occasion is there a list of accidents kept, nor a written notice of operations to be performed; and that on several occasions I have known one of the surgeons to have performed an operation in the theatre with a few only of the pupils present, who were apprised of the circumstance by mere chance, while the other surgeons, and the greatest number of the pupils were spread through the hospital.

I am, Sir,
Yours, &c.
A MEDICAL STUDENT.

HOSPITAL REPORTS.

GUY'S HOSPITAL.

Case of Strangulated Scrotal Hernia, in which a large portion of Omentum was removed.

Edward Apps, a tall, muscular, young man, was admitted into Accident Ward, on Sunday October 30th, about three o'clock in the afternoon, with scrotal hernia of the right side, which he stated to have existed upwards of nine years, during which period, however, he had not worn a truss. He said that the hernia frequently descended, but was easily returned when he assumed the recumbent posture, and at no period had he required medical assistance in order to effect its reduction.

It came down on Thursday evening when he was in bed, and not in consequence of any muscular exertion; he attempted to return it as he had usually done, but without success, and in this state he continued throughout Friday until the following day, when he sent for a surgeon, who gave him purgative medicines and directed the application of warm fomentations to the swelling. The patient stated, that by the action of the medicines the bowels were well opened, and that he felt but little pain. He had a copious evacuation from the bowels just before his admission into the Hospital.

The tumour at the time of admission was about the size of a large turkey's egg, extending down the inguinal canal into the scrotum, and the base of the tumour resting upon the testicle, which could readily be distinguished. The tumour felt very tender, but was somewhat elastic; the integuments were dark-coloured and it was tender upon pressure, as was also the whole lower part of the abdomen. The pulse was quick, small, and somewhat sharp, but there was no sickness nor anxiety of countenance. The patient was put into a warm bath and bled; faintness was produced, and whilst in this state the taxis was attempted for a considerable time without success.

The patient being put to bed, Mr. Callaway was sent for, and finding that the symptoms were not urgent, or such as to require an immediate operation, he directed the exhibition of the tobacco enema. An infusion was made of one drachm of tobacco to a pint of hot water, allowing it to infuse for a few minutes; half of this was first thrown up, which did not produce any effect, and the remaining half was exhibited after a lapse of half an hour. From the second injection the most striking effects were produced, as paleness, nausea, and general relaxation; the taxis was renewed and continued for a considerable time, but the tumour did not yield, and it now appeared to be exceedingly tender upon pressure. Mr. Callaway agreed to visit the patient about seven o'clock in the evening, and explained to him, that it would probably be requisite to perform an operation. At the appointed hour Mr. C. came to the Hospital; the deadly effects of the tobacco had not yet ceased, and slight attempts were made to return the hernia, but finding them of no avail the operation was at once determined upon, and the patient readily assented.

Operation.

Mr. Callaway commenced by making an incision through the integuments, of about three inches in length, which began just above the external abdominal ring; in this incision a small artery was divided, which it was necessary to secure. The remaining coverings (which were very distinct, owing to the patient's muscularity) were carefully divided in the usual manner.

When the hernial sac was opened, a large quantity of straw-coloured fluid escaped. The contents of the sac were found to be entirely omental, which was of a dark red, or livid colour; large veins, filled with very dark blood, could be seen meandering over its surface, and it had that peculiar crispy feel which is spoken of by Sir A. Cooper. Mr. Callaway attempted to discover the seat of stricture by means of his finger, but the parts were

so much constricted as only to admit of the introduction of a small probe director; upon this the hernial knife was introduced and the stricture freely divided. The seat of stricture was at the internal ring. Considering that a portion, or knuckle of intestine, might be included in the omentum, Mr. C. drew the omentum down, and the line of demarcation between the dead and living part was well seen. By means of a scalpel the omentum was cut through immediately below the living part; the vessels, however, did not bleed. The remaining portion of omentum was returned to the mouth of the sac, so as to plug up the opening; that portion which was removed weighed upwards of *six ounces*. The wound was closed by means of sutures and adhesive strips. The patient was very faint during and after the performance of the operation, and it seemed that the effect of the tobacco enema had not entirely subsided. After the lapse of two hours, two grains of calomel, with one grain of opium, were given, and a saline purgative mixture was directed to be taken until the bowels should be well evacuated.

On the day after the operation the pulse was sharp, and there was considerable tenderness of the abdomen; these symptoms readily yielded to venesection and the application of leeches. Up to the present period the patient had gone on well, and the wound is healing fast.

Fracture of the Patella, by the action of the Extensor Muscles.

Amongst the accidents admitted this week is a case of transverse fracture of the patella, which can be distinctly traced to the action of the muscles, inasmuch as the patient did not fall down. It is no uncommon occurrence for the patella to be fractured by the action of the muscles, and there is usually a fall subsequent to the fracture, to which in general the fracture is ascribed. The circumstances of the case under consideration are as follows:—

The man was employed in carrying a sack of corn, and was ascending a ladder in order to take it on board a vessel; having reached the top of the ladder, the right foot was advanced forwards and placed upon the side of the vessel which he was about to enter, and consequently, during this act, the weight of the body was thrown upon the left leg; the right foot slipped, and in endeavouring to recover himself he inclined his body backward, and in this state, he says, that he distinctly heard the "giving way" of the patella.

ST. THOMAS'S HOSPITAL.

Case of Extravasation of Urine.

S. Tilbury, ætat. 42, was admitted into Williams's Ward, on Monday, Nov. 7th, under the care of Mr. Travers. It was found, upon examination, that the scrotum was exceedingly distended from extravasation of urine into the cellular membrane; in addition to this extreme distension, the integuments of the scrotum had that dark coloured inflammation which almost amounts to a purple hue, and the scrotum had an emphysematous feel. There was great swelling also of the penis, arising from extravasation into the cellular membrane of its integuments. Upon the glans penis were small yellow vesicles, and there was a livid gangrenous spot, of the size of a shilling, on the integuments upon the dorsum of the penis, near to the pubes. From the swollen state of the integuments the penis was made to assume a peculiar figure, being in fact nearly sigmoid. The patient complained of much pain upon pressure in the pubic region, and this tenderness extended into the umbilical and to the inguinal regions. There was swelling immediately above the pubes, communicating to the hand the sensation of fluid in the cellular membrane, but there was no discolouration of integument. The perinæum was entirely free from tenderness or swelling, so that it was evident the urethra had given way at that part where it passes over the scrotum. The constitutional symptoms attendant upon the state of parts were highly alarming; the pulse was small, quick, and tremulous, and there was a marked anxiety in the expression of the countenance; the breath had a peculiar sub-acid or urinary smell; the tongue was slightly coated with white fur. Such was the state of the patient when admitted into the Hospital; we must look back to the previous history of the case, in order to discover the cause and origin of the extensive ravages which were going on. It appeared, from the patient's own account, that he had laboured under stricture for several years, but that he had not experienced much inconvenience from the disease. Within the last few days, however, previous to admission, he had experienced much difficulty in passing his urine. During this irritable and inflamed state of the urethra, (arising from some accidental cause,) the patient attempted, and indeed did pass bougies and sounds repeatedly; these measures, of course, only aggravated the mischief, and probably led to a rupture of the internal membrane of th

urethra, and thus to the effusion of that highly destructive and irritating fluid—the urine. The patient was attended by a *surgeon* (or rather by some one assuming that title) for several days previous to his coming to the Hospital; the practice of this surgeon was confined to the application of a few leeches, and fomentations of warm water.

Mr. Travers laid open the integuments of the scrotum to its whole extent, by making a complete section in the line of the raphe; and the integuments of the penis were scarified in different parts. Fomentations were directed to be applied to the lower part of the abdomen, and a beer-ground poultice to be applied over the scrotum and penis. A small flexible catheter was introduced without much difficulty, and about a pint of thick offensive urine was drawn off. The catheter was retained in the bladder, and the following draught was directed to be taken every four hours:

Spirit of nitric æther, 1 *drachm*;
Tincture of opium, 5 *minims*;
Camphor mixture, 1 *ounce*.

November 8th. Considerable bleeding resulted from the free incision made in the scrotum yesterday. The swelling of the scrotum is diminished, but the integuments retain their unhealthy colour, and the gangrenous spot on the integuments of the penis has increased in size. The pulse is of the same character as yesterday, scarcely to be felt, yet, very quick; there is occasional hiccup, and the patient complains much of want of rest. He was directed to continue the same applications; and *six ounces of port wine* to be taken during the day.

9th. The whole of the integuments of the penis are now in a gangrenous state, and emit a most offensive odour, the integuments of the left side of the scrotum are also similarly affected. The swelling above the pubes and tenderness upon pressure continue; the *nitric acid lotion* was ordered to be applied to the sloughing parts and the poultice to be continued.

10th. Much the same as yesterday: the pulse has somewhat more strength. There is now a diffused blush of inflammation of the integuments over the lower parts of the abdomen, the poultice was ordered to be applied over the parts. The flexible catheter is still retained in the bladder.

12th. The redness and swelling of the parts above the pubes have evidently much increased, the skin looks shining, and although there is no distinct fluctuation, the sensation communicated upon pressure is, that there is a breaking-up of the parts underneath. Destruction of the cellular membrane has gone on to a great extent, and the skin is now preparing to ulcerate or slough away, in order to admit of the separation of the dead cellular tissue. The countenance now is exceedingly anxious, the pulse small and quick, and indeed all the powers of life at a low ebb. Although the integuments on the penis are quite dead, there appears to be no effort on the part of nature to rid herself, they remain without any material alteration.

Mr. Travers made a free opening through the integuments on the right side of the abdomen about three inches above the pubes. A considerable quantity of highly offensive and ill conditioned pus was evacuated. The quantity of wine was increased to ten ounces daily, and strong beef tea was directed.

14th. Nature can no longer withstand the struggle, it is apparent the poor man is fast sinking. The pulse is almost extinct, countenance very anxious, and occasional hiccup. Another opening was made yesterday above the pubes, and a further quantity of pus evacuated. There was bleeding to a considerable extent from the incision, which of course tended still further to reduce the patient. He lingered on until this evening, when death released him from his state of suffering.

The body was removed by the friends, and thus a post-mortem examination was prevented. It would have been highly desirable to ascertain the state of the urethra.

ST. BARTHOLOMEW'S HOSPITAL.

Case of Hydrothorax, with extensive disease of the Heart.

James Long, aged 35, of a spare habit, who was admitted on the 13th of October, stated that a fortnight previously he fell asleep in a damp room, and slept for two hours; on awaking he felt that he had for the first time a violent pain in the region of the heart and chest, with exceedingly difficult respiration, but without any cough, and that he was quite incapable of lying on the right side. For these symptoms he was bled and blistered, without, however, deriving any material benefit; he then applied at the Hospital, and was admitted under the care of Dr. Latham. At this time the pain in the left side of the chest and region of the heart continued, the lower extremities had become œdematous, and the abdomen tense and swollen, respiration difficult and oppressed, tongue slightly furred, and moist;

sallow complexion and attenuated features; bowels torpid, urine scanty, and high-coloured; eyes rather dull; head free from pain; his dyspnœa is increased by the recumbent posture, on which account he has been obliged always to lie with the head and shoulders elevated. The attempt to lie on the right side is most intolerable. The skin is hard but cool, and the pulse is extremely irregular and unequal, small and feeble. He is low spirited, with a countenance depicting anxiety. Let him take

Calomel, 3 *grains*,
Opium, ¼ *grain*;

three times a day in the form of a pill—with three table spoonfuls of the following mixture every six hours:

Milk of almonds, 6 *ounces*,
Paregoric, 2 *drachms*,
Compound spirit of ammonia, 2 *drachms*;

and a blister to the side.

From the absence of cough and the presence of dyspnœa with pain, Dr. Latham's prognosis to-day was, dydrothorax as well as disease of the heart.

14th. Has passed a tolerable night, and the symptoms on the whole are a little improved. The medicines to be continued.

By the *stethoscope* the *respiration* is heard distinctly over the whole extent of the right side of the chest, but is scarcely perceptible in any part of the left side. Here also the sound elicited by *percussion* is dull and almost fleshy.

Stethoscope.—Heart. Impulse and *sound* both great in the cardiac region; and the order of the contractions of the different parts of the heart, and the relative succession and duration of these, or the *rhythm* as it is technically termed, quite irregular. Sound of the heart's contractions audible over a large portion of the anterior and posterior sides of the chest, most without the stopper of the instrument, and on placing the hand over the front part of the chest the fluttering and tremulous action of the heart is readily felt.

15th. Bowels have not been opened for the last forty-eight hours until to-day, when a small, fœtid, dark motion was passed. In other respects just the same as yesterday.

16th. To-day, rather to our surprize, we find him decidedly improved, the pain in the chest is diminished, and the poor fellow's general feelings, are for the better. The blister has drawn remarkably well.

17th. 1 p. m. The favourable change of yesterday has been but of short duration, the dyspnœa has returned as violent as before, or perhaps rather worse, the œdema increases, the eyes are duller, and the pulsations at the wrist merely undulatory; at the carotids, however, they can be distinctly felt, very frequent and intermitting. On the application of the *stethoscope* to-day, a peculiar thrilling noise, corresponding to the *sibilous rattle*, was discoverable. The mouth is not yet affected by the calomel; complains of pain about the pit of the stomach, for which twelve leeches were ordered to be applied immediately; on visiting him at 6 p. m. found the bleeding from the leeches had not at all benefited him; that the œdema had extended to both arms, and the lower extremities cold; bottles of warm water were immediately applied to the feet, and he was ordered to be kept warm.

19th. On visiting him early this morning found he had in some degree rallied; that in the course of the night a dark green evacuation had been passed, and that he was also lying on his back; the head still obliged to be propped up high. Let him continue the medicines, and a blister to the cardiac region.

20th. Bowels have been open once during the night, but the urine still continues very scanty; the pulse somewhat more distinguishable at the wrist; the bilious and dull appearance of the eyes rather less. In this way he continued, sometimes a little better, and sometimes worse, until the 22d, when he could lie on the right side with apparently greater ease than on the other. The pills were discontinued on 21st. Towards night he grew very restless and unmanageable, throwing and tossing his limbs about, and quite insensible when spoken to. He lingered on in this wretched state till the morning of the 23d, when the mucous rattle became very distinguishable, and in a few hours he died.

On examining the body ten hours afterwards, a very large quantity of serous fluid was found effused into the cavity of the abdomen. On removing the sternum, the thorax was found to contain a considerable quantity of fluid, the pleura pulmonalis of the left side slightly inflamed, the substance of both lungs might be pronounced natural; crepitus elicited on pressure, and portions detached and thrown into a basin of water floated; the only part that appeared at all diseased, was the anterior inferior portion of the left lobe; this did not float so lightly as the other parts, neither was the crepitus so readily perceived. It is evident, therefore, that all inflammation in this organ, if any existed, must have subsided some hours before death,

and this is in great measure confirmed by the patient's capability to lie on the right side. The bronchia were found to be highly injected. About twelve ounces of a yellowish-coloured fluid was contained within the pericardium, and a large portion of its anterior surface firmly adhered to the heart. The right auricle was dilated, but not thickened, constituting what Corvisart calls passive aneurism. The eustachian valve was quite reticular, the tricuspid and semilunar valves appeared of a whiter and more thickened appearance than usual, but quite capable of performing their proper offices; the mitral valve, however, was much indurated and corrugated, putting on a chord-like appearance; in short the valvular structure could scarcely be recognised, and it must have been quite inadequate to perform any thing like its proper office. The parietes of the left ventricle were so thick that it might almost be called hypertrophy of this part. The left auricle and right ventricle were natural.

MIDDLESEX HOSPITAL.

Case of Injury of the Head, followed by Abscess in the Brain.

Patrick Doyle, a stout muscular man, and apparently about 35 years of age, was brought into the Hospital on Tuesday, October 25th, about seven o'clock in the evening, in a state of complete insensibility. But an unsatisfactory account of the history of the case was obtained from the persons who brought him in; since this period, however, we have gained the following particulars:—Three weeks previous to his admission, he was drinking in a public house at St. Giles's, in company with some common prostitutes; a woman with whom he cohabited struck him some violent blows on the head with a tin can. It appears that he was much intoxicated at the time, and that the wounds bled profusely. It was detailed in evidence given at the Police office, that four days after inflicting the injury with the tin can, the woman beat him on the head with a hammer.

In a few days he recovered from the effects of the blows, and was sufficiently well to be able to resume his accustomed employment. About a week after this period he became very unwell, complaining of pain in the head, and four days previous to his admission into the Hospital he fell into a state of insensibility, and was taken to St. Giles's workhouse.

Upon examining the head several cicatrices were found (to the amount of eight or ten) in different parts of the scalp; all of the wounds appeared to be completely healed. A probe was introduced between the adhesions of one of the wounds, which appeared to have been most severe, and was on the forehead, about two inches above the right orbit. At this part a fissure was felt in the bone. The patient, as before stated, was completely insensible; the breathing was stertorous and the pupils widely dilated; the pulse was slow and the extremities cold. Previous to the arrival of the surgeon of the week (Mr. Shaw) *leeches were applied to the head!!!* On the arrival of Mr. Shaw, he determined on trephining the skull at the part mentioned above, in which the fissure was felt.

Operation.

The scalp was cut through, and the pericranium removed to a certain extent. A small circular portion of bone, about the size of a split pea, and of a whitish dead appearance, was perceived with a fissure running entirely around it, and it appeared as if it were depressed in a slight degree. A trephine was applied, which included this portion of dead bone. Contrary to the expectation and prognosis of Mr. John Shaw, there was no matter found upon the dura mater. On examining the circular portion of bone removed by the trephine, the small portion of bone alluded to above was found to be quite diseased throughout, and it did not appear that there was any depression. The wound was dressed with oiled lint. The patient did not appear sensible of the pain occasioned by the operation, and he died about three hours afterwards.

Post-mortem Examination.

On Tuesday morning the head was examined. The dura mater was found to be more vascular than in other parts, for the space of an inch where the trephine was applied to the skull, and at this part adhered firmly to the membranes underneath.

The seat of disease was in the anterior lobe of the right hemisphere of the brain at which part an abscess was found containing nearly an ounce of greenish-coloured pus.

If the Senior Joe had performed the operation of trephining in this case, we are inclined to think the object of evacuating the pus would have been accomplished, inasmuch as the abscess was within half an inch of the external surface of the brain.